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# In the Supreme Court

OF THE  
United States

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OCTOBER TERM, 1922

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No. 278

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LAYNE & BOWLER CORPORATION,

*Petitioner,*

VS.

WESTERN WELL WORKS, INC. (a corporation),  
ROTARY DRILLING AND DEVELOPMENT COM-  
PANY (a corporation), STANLEY M. HAL-  
STEAD, P. E. VAUGHAN and ALLEN W. ROSS,  
*Respondents.*

On Writ of Certiorari to the United States Circuit Court of Appeals  
for the Ninth Circuit.

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## RESPONDENTS' BRIEF

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### STATEMENT.

This is a suit for alleged infringement of Layne  
patent No. 821,653, issued May 29th, 1906, on an  
application filed April 28th, 1903, and purporting

to cover new and useful improvements in Well Mechanism. The suit is based upon claims 9, 13, and 20 of said patent.

The District Court for the Northern District of California found said claims valid and infringed. On appeal, the Circuit Court of Appeals for the Ninth Circuit reversed the decree in so far as holding that defendants' construction did not infringe said claims, though at the same time finding the patent valid. In so doing the Court of Appeals for the Ninth Circuit, speaking by Judge Morrow, in a carefully considered opinion (Record 1121-1148—reported 276 Fed. 465) followed substantially the Circuit Court of Appeals for the Fifth Circuit.

The case is now before this court on writ of certiorari.

For convenience the petitioner will be referred to herein as "plaintiff" and respondents will be referred to as "defendants".

---

#### ADJUDICATIONS OF THE LAYNE PATENT IN SUIT.

This court will be materially assisted in the construction of the Layne patent by what has been said about it by the various judges before whom it has come for review in the past. The other reported Opinions, to which the Court's attention is particularly directed, are all in the Fifth Circuit, to-wit:



The El Campo Case, 195 Fed. 83, C. C. A.  
5th Circuit;

The Van Ness Case, 213 Fed. 804, C. C. A.  
5th Circuit;

The Getty Case (on Preliminary injunction), 220 Fed. 918;

The Getty Case (on appeal from Final Hearing), 262 Fed. 141.

In addition to these four Opinions of the Appellate Court, there is the recent decision in the Los Angeles District in the American Well & Prospecting Company case, which case is, for convenience, referred to as the "Los Angeles case"; the report of the Master who was appointed by the court to hear the evidence and submit his findings appearing (R. ~~1812~~).

1072

The net result of all these decisions has been practically to construe the Layne patent to the level of a mere paper patent, valid only within very narrow limits. The Getty case *supra* may be taken as the leading case on the subject following as it does repeated reviews of the same question by the same court.

The gist of the Getty case was that the Layne patent was limited to a *stagnant* system of lubrication which was not infringed by a pump employing a *circulatory* system of lubrication. The logic and importance of such a distinction will be manifest in its application to the instant case.

The new defenses interposed here on the scope and validity of the patent must necessarily result in a further paring down of the claims in question, rather than any enlargement thereof. These new defenses are:

- (1) Byron Jackson prior invention and sale.
- (2) Alvord prior invention.
- (3) Eisler patent.

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#### THE CLAIMS IN SUIT.

The claims involved are numbers 9, 13 and 20 (R. 1005) and read as follows:

"9. In well mechanism the combination with a pump casing, of a rotary pump of a jointed pump shaft and a closed casing surrounding the pump shaft from the pump to the top of the well.

"13. The combination with a pump and its actuating shaft of a sectional casing therefor provided at each end of each section with a fixed block with bearings for the shaft, the casing being closed at the top and provided with an air vent.

"20. The combination of a well casing, a rotary pump therein, and a line shaft for the pump entirely closed off from the water in the well."

Having read the El Campo, Getty and Van Ness decisions, *supra*, and Judge Morrow's opinion in

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NOTE—In the Van Ness case, *supra*, the court found (page 807) that:

"The word 'closed' in claim 9 seems to mean as much as the words 'entirely closed' in claim 20."

and proceeded to hold the two claims to be substantially alike.

the Western case, the meaning of these claims as interpreted by the several appellate tribunals will in a large measure have become apparent to this court.

We shall, however, in due course point to what we think is the true meaning of these claims and show that whatever that meaning is, whether that given by the Fifth or Ninth Circuit Judges, that defendants do not and never did infringe.

---

**MEANING AND SCOPE OF THE CLAIMS IN SUIT.**

Throughout the litigation that has been carried on over the Layne patent the proponents of Layne have urged upon the various courts the reading into these claims of functions and elements not apparent on the face of the claims, nor, indeed, deducible from the description and drawings of the patent. Even though the Circuit Court of Appeals for the Fifth Circuit felt disposed to give Layne credit for accomplishing an important advance in the art, nevertheless that court in the Van Ness case, 213 Fed. 804, in passing upon the scope and meaning of claim 13 said:

“While the Van Ness pump is closed at the top, it is not contended that the pump has an air vent such as the patented pump had and such as the El Campo pump had. One function of this air vent is to force any water or spent lubricant remaining in the casing, out of it, through an aperture in the top, by forcing air through the air vent into the casing, for the purpose of substituting clean liquid or oil.

It seems clear that the Van Ness pump had no such member with a corresponding function as the air vent of the patented pump or that of the El Campo pump, and so cannot be said to infringe claim 13. This, if correct, would prevent complainant from relying upon claim 13 in this case, as a ground of recovery."

In considering claims 9 and 20 the same court said:

"Giving claim 20 this interpretation, it seems that it is substantially like claim 9, except in the omission of the element of jointure or extensibility of the shaft sections, which adds nothing to the novelty and patentability of the device; and that the element common to each claim, viz., *the protective or closed casing surrounding the pump shaft from the pump to the top of the well and entirely closing off the water in the well from the shaft and its bearings, is the only element in any one of the claims as to which there is persuasive evidence in the record both as to patentability and infringement.* The word 'closed' in claim 9 seems to mean as much as the words 'entirely closed' in claim 20. (Italics ours.)

---

**MISUSE BY PLAINTIFF OF DETACHED PHRASES FROM THE  
VAN NESS AND GETTY CASES.**

The plaintiff in its argument seeks to predicate conflict between the Fifth and Ninth Circuits and endeavors to make it appear that the Fifth Circuit held the Layne patent to be of a fundamental, generic character and entitled to a broad range of equivalents, *although not infringed by the Getty device*; whilst the Ninth Circuit, still construing the

patent as valid, held it not infringed by the Western device; and yet Getty was nearer to Layne than Western.

The plaintiff always as a premise to its arguments repeats this phrase over and over again: "The Layne patent . . . did accomplish a revolution in the well-drilling industry," while failing to give the full quotation (262 Fed. 141, 143), which is:

*"The Layne patent too nearly resembles the Crannell patent to be called a pioneer patent, though it did accomplish a revolution in the well-drilling industry."*

The phrase emphasized is what the plaintiff takes occasion each time to omit. The plaintiff has also failed to call attention to the sentence or two following in the Getty case where the court said:

*"While the substitution of mere mechanical equivalents for the means adopted by Layne could not avoid infringement of his patent, it is also true that the range of equivalents cannot be enlarged upon the idea that his patent was a pioneer one in the pump art. Its advance over Crannell prevented Crannell from being considered by us an anticipation, and was enough to show novelty, but it stops there. The Layne patent must rest, not upon the idea of closure, which would not be patentable apart from the method by which it was accomplished, but upon the means of its accomplishment, as disclosed by the specifications of his patent."* (Italics ours.)

Plaintiff, likewise, ignores this, from the Van Ness decision:

"It seems quite clear that the idea of a protected casing for a pump shaft without restrictive interpretation would contain no novelty and would not be patentable, and, if this element in the patent is given the unrestricted meaning that its language admits of, it would destroy the claim."

*Van Ness*

and that in the ~~Getty~~ case the court said:

"it seems that the question of infringement, like that of novelty, is a close one" (R. 809).

And

"Layne's method of lubrication was to put the oil in at the top and to permit it to descend to each of the bearings, and remain stagnant within the shaft casing until ejected from the top after it had become spent by air pressure through an air vent . . . On the other hand, the oil was confined at the bottom of the well by use of a packing or stuffing box. Getty adopted a circulatory system of lubrication. By it the oil was also introduced from the top, and descended to the lower bearings by gravity. However, at the bottom there was only a partial obstruction to its exist, presented by a long sleeve bearing. Its passage out from the shaft casing was automatic and continuous, so that there was a constant and free flow of lubricant from the top of the line shaft, throughout its length, and out through its bottom."

We thus see that even conceding all of the contentions of Layne as to the revolutionary character of his alleged invention and the filling of a

long felt want, the court was unable to find infringement of any of his claims by a structure which did not effect a *complete closure* of the shaft-enclosing casing, but which on the contrary used a *circulatory method* of lubrication as distinguished from Layne's *stagnant system*. Although there was considerably more prior art before the Circuit Court of Appeals for the Ninth Circuit in the present case than there was before the Circuit Court of Appeals for the Fifth Circuit in the two cases referred to ante, nevertheless the former resolved all doubts in favor of Layne and sustained his patent, but necessarily found non-infringement thereof.

---

**LAYNE PATENT FOUND TO BE OF NARROW SCOPE BY TWO  
DIFFERENT COURTS OF APPEAL.**

The Layne patent, while uniformly held valid by the courts, has likewise been uniformly held as being for a *narrow* invention.

In the El Campo case only claim 13 was infringed; in the Van Ness case claims 9 and 20 were infringed because the "thrust collar" at the bottom acted as a "stuffing box" to "entirely close" the shaft tubing; while in the Getty, Los Angeles and Western Well cases there was no infringement, because they all lacked closure in Layne's sense and operated on a "circulatory" system of lubrication while Layne's system is "stagnant".



The Circuit Court of Appeals for the Fifth Circuit in the case of Layne vs. Getty, 262 Fed. 142, said:

“The Layne patent must rest, not upon the idea of closure, which would not be patentable apart from the method by which it was accomplished, but upon the means of its accomplishment, as disclosed by the specifications of his patent.”

Similarly, the Circuit Court of Appeals for the Ninth Circuit in its decision in the case now brought here for review, said (R. 1131):

“We have placed some emphasis upon the fact that all the claims in this patent relate to one principal operative invention of a well mechanism, and in that relation they all in a more or less direct and practical way were designed to co-operate and supplement each other to the common intent and purpose of being employed in an operating pump apparatus for a driven or artesian well; but when we turn to the analysis of the claims in suit, we find that the essential elements claimed to have been infringed are limited and narrow and relate only to the combinations of a rotary pump with an actuating shaft entirely closed off from the water in the well by the casing surrounding the pump shaft.”

---

**DECISIONS OF FIFTH AND NINTH CIRCUITS ARE IN COMPLETE HARMONY AS TO VALIDITY OF LAYNE PATENT.**

The same court which found infringement in two cases, but of different claims in each case, found non-infringement in a third and later case where

a different structure was involved and at a time when the court had acquired greater familiarity with the scope and meaning of the Layne patent.

The Circuit Court of Appeals for the Ninth Circuit in the instant cause, with the records of all prior suits before it, found validity and non-infringement in harmony with the findings of the Fifth Circuit of the Court of Appeals. This is clearly shown by the following quotation from the opinion of the court, *Western Well Works vs. Layne & Bowler Corporation*, 276 Fed. 470, 472 (R. 1133):

"In *Getty vs. Layne* (C. C. A.) 262 Fed. 141, the court followed its decisions in the previous cases, determining the question of the validity of the patent in favor of the plaintiff, but the court held that the patent was not entitled to the wide range of equivalents of a pioneer patent."

That this is a correct statement we have only to note the following from the Circuit Court of Appeals for the Fifth Circuit in the *Getty* case, 262 Fed. 143:

"The Layne patent too nearly resembles the Crannell patent to be called a pioneer. . . . Its advance over Crannell prevented Crannell from being considered by us an anticipation, and was *enough to show novelty, but it stops there.*" (Italics ours.)

The Ninth Circuit in the case under consideration gives its stamp of approval to validity of the Layne patent where it is said (R. 1136):

"We are of the opinion that there is invention in the entirely closed casing of the Layne patent as claimed in claims 9, 13 and 20, particularly claim 20, functioning as it does in complete protection to the line shaft from the ingress of water and sand and in protecting the means for lubrication."

When we come to analyze the prior decisions in detail, we will see that each court in imparting validity to the Layne patent, by resolving all doubts in favor of Layne and not invalidating the particular claims sued on, did so with regard to the mechanism disclosed in the drawings and specification of the patent in recognition of well recognized principles of patent law.

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**HOLDING OF NON-INFRINGEMENT BY FIFTH AND NINTH  
CIRCUITS ALSO IN HARMONY.**

The Court of Appeals for the Fifth Circuit, in finding non-infringement in the case of Getty vs. Layne, *supra*, said, at page 144, after describing Layne's method of lubrication already quoted *supra*,

"We think Getty has accomplished closure and lubrication by means so functionally different from Layne's disclosure in his patent that they cannot be said to be mere mechanical equivalents, but rather distinct methods of attaining the same object; the object itself not being patentable."

The Circuit Court of Appeals for the Ninth Circuit in finding non-infringement in the instant case quoted verbatim the above language (page 143)

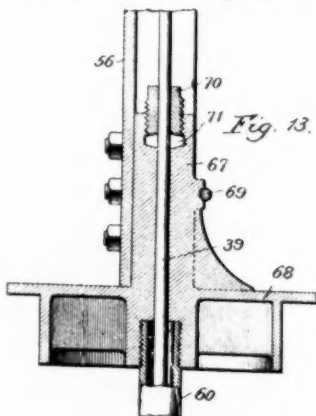
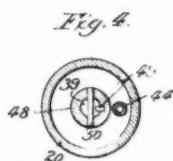
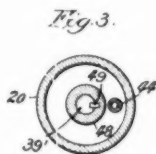
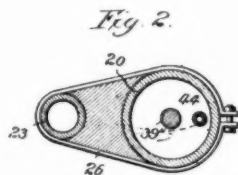
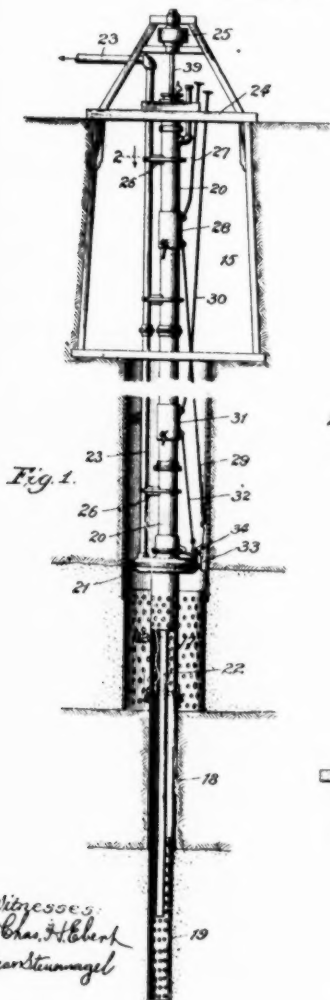
No. 821,653.

PATENTED MAY 29, 1906.

M. E. LAYNE.  
WELL MECHANISM.

APPLICATION FILED APR. 28, 1903.

4 SHEETS—SHEET 1



Witnesses:  
Chas. H. Albert  
Oscar Steinhilber

Inventor:  
Morton E. Layne  
By Paul Symonds

No. 821,653.

PATENTED MAY 29, 1906.

M. E. LAYNE.  
WELL MECHANISM.  
APPLICATION FILED APR. 28, 1903.

4 SHEETS-SHEET 2.

Fig. 5.

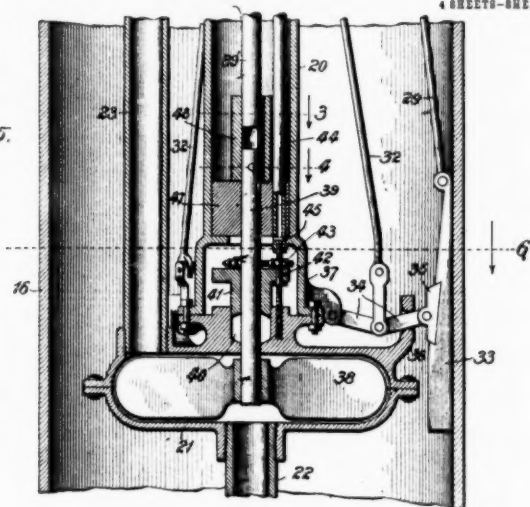
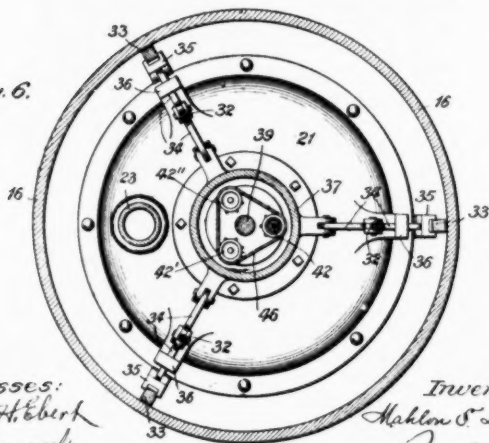


Fig. 6.

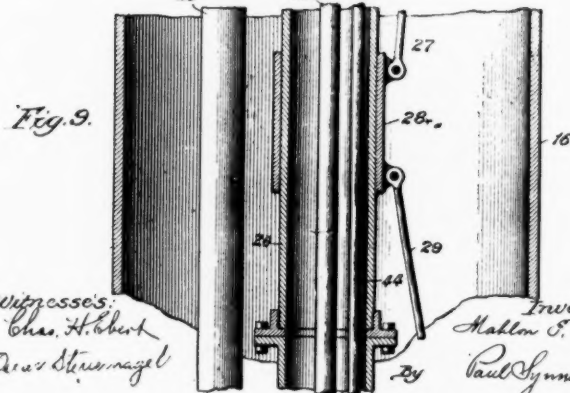
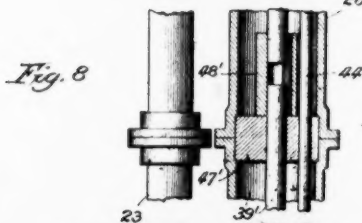
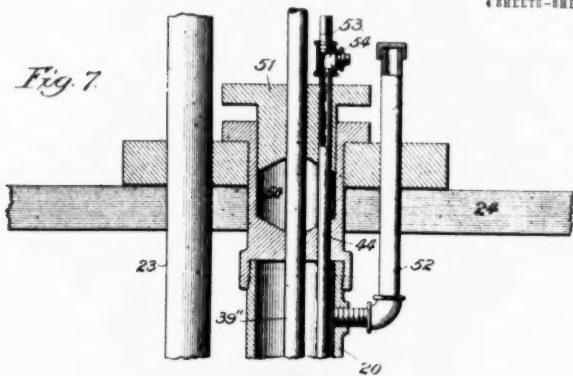


Witnesses:  
Chas. H. Ebert  
Car. Steinmager

Inventor:  
Maklon S. Layne  
By Paul Symsworth  
Att'y.

M. E. LAYNE.  
WELL MECHANISM.  
APPLICATION FILED APR. 28, 1903.

4 SHEETS-SHEET 3



Witnesses:  
Chas. H. Albert  
Oscar Stuenkel

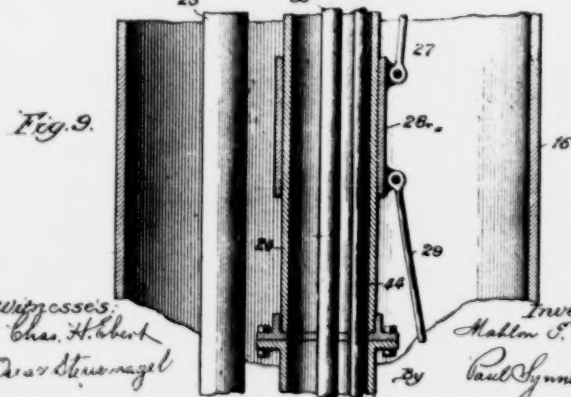
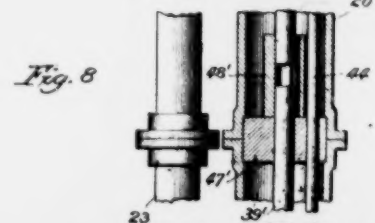
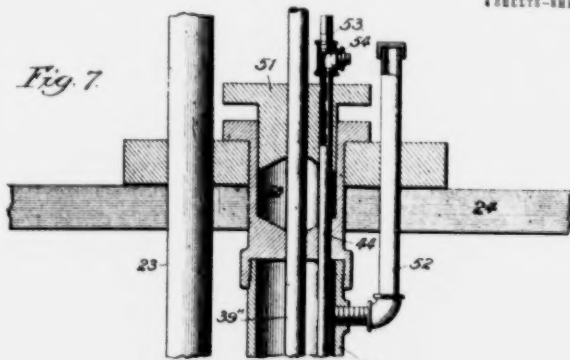
Inventor:  
Maklon F. Layne  
Paul Lynnevedt  
Att'y

No. 821,653

PATENTED MAY 29, 1906.

M. E. LAYNE.  
WELL MECHANISM.  
APPLICATION FILED APR. 29, 1903.

4 SHEETS—SHEET 3



Witnesses:  
Chas. H. Chert  
Oscar Stummigeli

Inventor:  
Mallon S. Layne  
Paul Synnestrict  
Att'y

No. 821,653.

PATENTED MAY 29, 1906.

M. E. LAYNE.  
WELL MECHANISM.  
APPLICATION FILED APR. 29, 1903.

4 SHEETS—SHEET 4

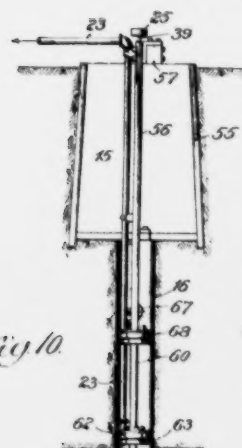


Fig. 10

Fig. 11

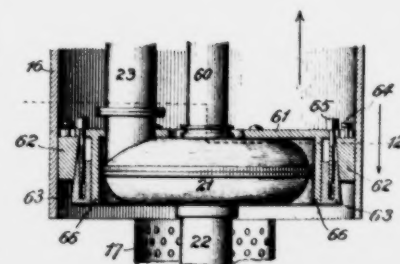
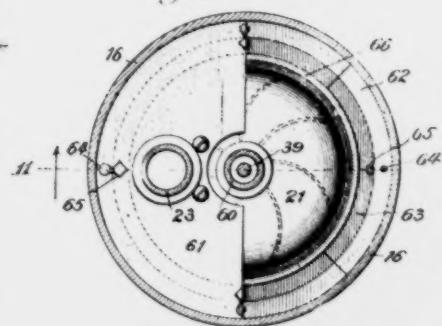


Fig. 12



Witnesses:  
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Oscar Stummigeli

Inventor:  
Mallon S. Layne  
By Paul Synnestrict  
Att'y





from the opinion in the Getty case (see R. 1135) and concluded (R. 1136):

“The difference between the Layne patent and the Getty mechanism, as it appears in Getty vs. Layne, *supra*, is essentially the difference between the Layne patent and the defendants’ mechanism in this case.”

The question brought before this court for determination appears to be whether or not the two Circuit Courts of Appeal referred to have placed a proper interpretation upon the scope of Layne’s patent and that this is to be decided not upon the extent of alleged “commercial success” attained by plaintiff in *later years on a greatly changed structure*, but upon a study of the *patent* in suit and the proceedings in the Patent Office leading up to the granting thereof, together with a consideration of the prior art.

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**THE LAYNE INVENTION AS DISCLOSED IN THE PATENT  
IN SUIT.**

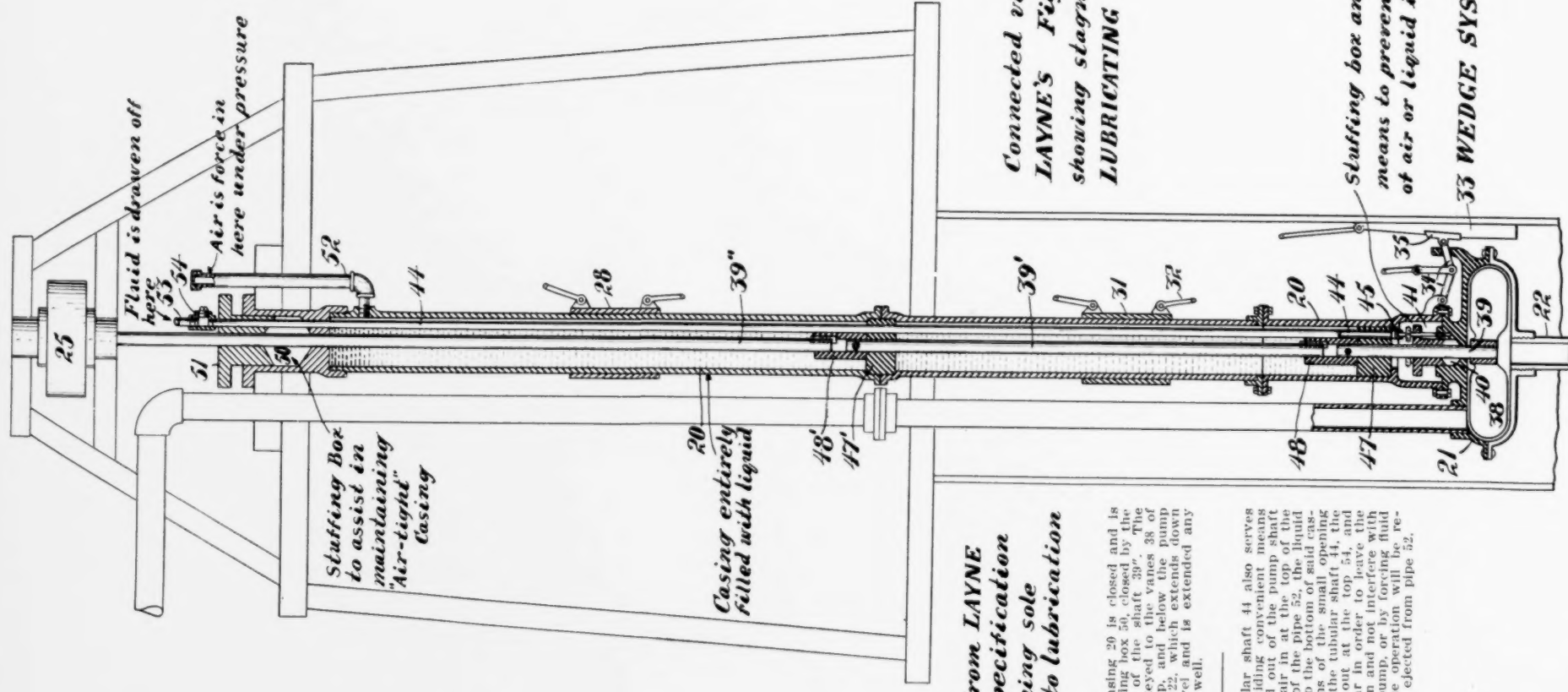
On the opposite page the Layne patent drawings are reproduced direct from the patent, and in connection therewith the court’s attention is invited to a consideration of defendant’s model Exhibit “B” of the Layne patent in suit, which is admitted to be correct (R. 728).

The patent in suit says:

“My invention relates to apparatus used for drawing water from driven or artesian wells, and particularly to *means for adjusting a pump therein.*” (*Italics ours.*)

Said "adjusting" means, as will be apparent from a reading of the patent, are a system of wedges indicated generally at 33 in Fig. 5 and at 62, Fig. 11 of the drawings. The stated objects of the Layne invention are:

- "(1) to provide means by which the piping and the pump may be all assembled in proper shape before inserting it into the well;
- (2) to provide means by which a pump may be placed in any desired position in a well, centered, raised or lowered and fixed in position by manipulating from the outside entirely;
- (3) to provide means for adjusting the length of the piping leading from the pump to the surface at will and to lower the pump from time to time without taking it out of the well;
- (4) to provide improved means for centering and fixing the pump in proper position in the well casing;
- (5) to provide improved means for manipulating the packing of the pump shaft, and proper adjustment of the pump in place by means at the surface of the ground;
- (6) to provide for the proper action of a pump without stopping up the well, so that water may be either flowed into or pumped out of the same at pleasure;
- (7) to provide a superior mounting for a centrifugal pump in the well, manipulated from the surface of the ground;
- (8) to provide an extensible pump shaft separately supported at intervals along its length;
- (9) to provide an automatic centering device for the pump in the well;



*Extract from LAYNE  
Patent specification  
containing sole  
reference to lubrication*

At the top, the casing 20 is closed and is provided with a stuffing box 50 closed by the cap 51, at the top of the shaft 39. The shaft 39 is fixedly keyed to the vanes 38 of the centrifugal pump, and below the pump casing 21 is a pipe 22, which extends down below the water level and is extended any desired depth in the well.

This pipe or tubular shaft 44 also serves the purpose of providing a convenient means for forcing the liquid out of the pump casing. By forcing air in at the top of the casing 20, by means of the pipe 52, the liquid can be forced down to the bottom of said casing 20, and by means of the small opening 45, in the bottom of the tubular shaft 44, the fluid can be forced out at the top 54, and keep the casing clear in order to leave the bearings clean therein and not interfere with the working of the pump, or by forcing fluid in at the top 54, the operation will be reversed, and the fluid ejected from pipe 52.

*Connected view of  
LAYNE'S Figures 5, 7, 8 & 9  
showing stagnant  
LUBRICATING SYSTEM*

*Stuffing box and tightening  
means to prevent escape  
of air or liquid into pump*

*33 WEDGE SYSTEM*

- (10) to provide for mounting the pump and the shaft in a closed casing which is open to operate from the top;
- (11) to obviate the necessity of making large wells for descending into them in order to arrange the pump, and
- (12) to generally improve and cheapen the apparatus used for the above purposes."

Inasmuch as the drawings of the Layne patent are of a piece-meal character and somewhat obscure, we have assembled the different views in one and on the opposite sheet will be found a connected view of Figs. 5, 7, 8 and 9, which Layne terms his "approved form".

Referring to this illustration it will be noted that the pump proper indicated at 38 is fixed in the well casing by a system of "wedges 33" which are operated from the top of the well by means of links (32-31-28) and toggles 34-35 (see Model "B"). The pump has a peripheral discharge pipe for the water and is driven by a splined and jointed shaft made up of sections 39, 39' and 39", which extend up through a casing 20. The casing is sealed at the bottom and top by stuffing boxes 40 and 51 respectively and is completely filled with liquid, which may incidentally serve as a lubricant. This liquid remains stagnant in the tube or casing 20 and can only be forced out through the pipe 44 by pressure of air introduced through the pipe 52. (Cut opposite)

The second form of the Layne well mechanism is shown on the ~~opposite~~ <sup>next</sup> sheet, being the same as

Layne's Fig. 10 except that the structure is sectionalized throughout, whereas the Layne patent drawings show the same not in section.

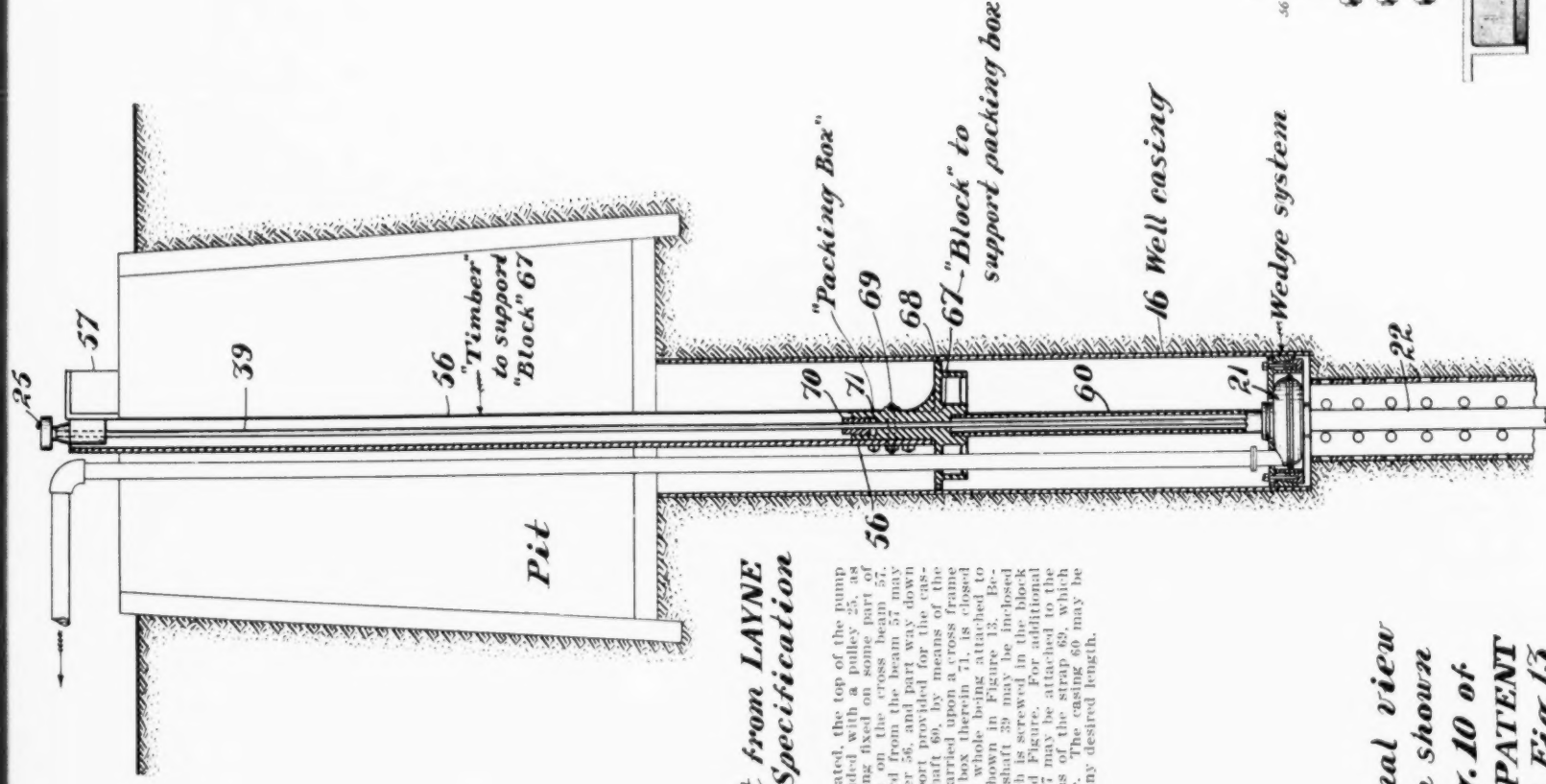
In this modified form the drive shaft is not made up of sections. It is exposed throughout the greater portion of its length. The tube "60" which extends only between the pump bowl 21 and "block 67" neither contains nor shows any lubricating means. To prevent well water rising above the pump bowl and getting up around the exposed shaft, the pump bowl 21 itself is surrounded and *packed by a water-tight "wedge system"* which prevents water from rising there-around from the well below. No lubrication whatever has been provided for in this form of the Layne mechanism.

---

Prof. Lesley, an eminent, practical engineer of Stanford University and expert for defendant, says, in expounding the Layne patent as embodied in the model Exhibit "B" beginning R. 729:

"The model shows a pump bowl, a shaft surrounded by an enclosing casing, a discharge column, and a representation of a pump head; the shaft and its enclosing casing are in sections, the weight of each section of shafting is borne by a thrust bearing; . . .

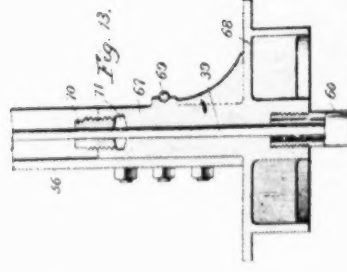
"The thrust bearings or support collars are numbered 48; the shaft-enclosing casing sections are numbered 20. In operation the pump would [691] be driven through a sectional line shaft from the top, turning the impeller, which is numbered 38, and by centrifugal force driving



# *Extract from LAYNE Patent Specification*

15 In the case illustrated, the top of the pump shaft may be provided with a pulley 25, as before, and a bearing fixed on some part of the casing 60, as on the cross beam 57. Extending downward from the pulley 25, there may be provided a timber 56, and part way down a bearing and support provided for the casing of the pump shaft 60, by means of the block 67, which is carried upon a cross frame 68; and a packing box therein 71, is closed by a screw 70, the whole being attached to the timber 56 as shown in Figure 13. Below this point the shaft 39 may be inclosed in a casing 60, which is screwed in the block 67, as shown in said Figure 13. An additional security the block 67 may be attached to the timber 56, by means of the strap 69, which surrounds the same. The casing 60 may be in sections and of any desired length.

*Sectional view  
of form shown  
in Fig. 10 of  
LAYNE PATENT  
also of Fig. 13*



*Inventor  
Milton S. Layne  
Patented*



the water up the discharge column, No. 23, and delivering it to the surface of the ground."

Continuing, Prof. Lesley says:

"A lubricating feature is provided, in that the shaft-enclosing casing is made substantially tight against the entrance of water from the well or from the bowls No. 21, against the entrance of water from any point—water or anything that the water might carry with it; means are provided for tightening this tube, substantially sealing it off, both at the bottom and at the top. A stuffing-box,\* on which I find no number, is provided at the bottom; packing is arranged at the bottom. The stuffing-box is also provided with a top, and in conjunction means is provided for tightening the glands of the stuffing-box, which, of course, cannot be reached from the surface of the ground; that is the tube No. 44, which has at its lower end a sprocket which engages—a sprocket of which there are three, carrying a sprocket chain—the design appearing to be if this tube is rotating, all three stuffing-box bolts would be turned down and tightened at the same time; the stuffing-box gland at the top is the ordinary form with only two bolts. As disclosed in the patent drawings, there is a pipe No. 52 which is described as an air vent; the part marked No. 44 is also a tube, and is provided with a hole into the chamber 47."

---

\*Stuffing box: In mach., a contrivance for securing a steam-air—or water-tight joint when it is required to pass a movable rod out of a vessel or into it. It consists of a close box cast round the hole through which the rod passes, in which is laid, around the rod and in contact with it, a quantity of hemp or india-rubber packing. This packing is lubricated with oily matter, and a ring is then placed on the top of it and pressed down by screws, so as to squeeze the packing into every crevice. The stuffing-box is used in steam-engines, in pumps, on the shaft of a screw steamer where it passes through the stern, etc.

Prof. Lesley then indicates (R. 730) the *stagnant* system of lubrication employed in Layne, saying (R. 730):

"It is stated in the patent specifications *that this whole interior of the shaft casing may be filled with oil; no water can leak into it; there is no other place for the oil to leak out.* It is sealed against water at the bottom, it is sealed against oil leaking out; the lubricant may be used for such time as is necessary, until it shall have become spent [692] or worn out, and then that air pressure may be applied to the air pipe, 52, and the oil forced down and into the hole in pipe 44 and upward and out one of the openings that are provided at the top, or that the operation may be reversed, and air may be forced in at the top, thus forcing the oil upward and out of the pipe 52." (Italics ours.)

And on page 731:

"As to the lubricating feature, this pump provides what may be termed a stagnant system of lubrication; the lubricant introduced by some means into the tube is held there until it becomes spent. There appears no way by which it can be continuously fed. *It is simply held as lubricant might be in the crank case of an automobile; it is filled up [693] and it wears out or is burned out, dissipated.*" (Italics ours.)

The loosely connected sectional feature of Layne's driving shaft with *thrust collars* for supporting the *shaft sections individually* act as a further seal to enhance the stagnant feature of the Layne oiling system, and *prevent "gravity" feed.*

LAYNE IS AN UNDERNEATH FORCE FEED SYSTEM.

1. The bearing blocks or thrust collars 48 for each shaft section form a *complete seal* over the bearing on which it rests, to prevent oil passing down just as did the thrust collar in Van Ness, resting upon the long brass bushing and forming a mechanical closure (see *post* herein, page 71). In Layne each thrust collar or thrust being 48-48' would form a seal against any downward circulation of oil, even if pressure were applied, because the more pressure at the top the tighter would the thrust collars 48 of Layne seat on the bearing blocks.

2. Lubrication in Layne must be from the *bottom up*; i. e., oil must be injected under pressure through the pipe 44 (Fig. 5), passing downward and finding its outlet below the lowermost bearing, and then as the pressure of the oil piles up there below (being prevented from escaping into the well by the lower stuffing box 40-41) it would work *upward* around the shaft 39, slightly lifting the shaft and the thrust collar 48 and gradually filling the compartment in the shaft tubing above; similarly passing *upward* around each shaft section and its thrust collar until the whole reservoir or chamber formed by the shaft-tubing was filled to the top; the air vent 52 allowing the displaced air to escape as the oil rises.

The foregoing analysis explodes the "gravity feed" theory of plaintiff and shows better than any-

thing else the "stagnant" quality of Layne's lubrication.

---

**WEDGE MECHANISM FOR CENTERING THE LAYNE  
MECHANISM.**

Concerning this feature, which we find to be an emphasized one in the Layne patent, Prof. Lesley says (R. 731):

"Auxiliary devices, in the form of a wedge mechanism, parts No. 33, with sliding collars, 31 and 28 and connecting rods and toggle links, are provided, as stated by the patent, to secure this mechanism within the well. The weight of the pump bowls, and of the runner, and of the shafting is supported by the shaft-enclosing casing sections, 20, in this particular model, which I should say is substantially correct with the drawings; the weight of the discharge casing, or discharge tube, 23, is also supported by the tube line."

Now if we turn to the patent we see how these features so tersely described by Prof. Lesley are emphasized by the patentee.

---

**"THE WEDGES."**

Thus on page 2 of the patent (R. 1003) beginning line 1, the patentee says:

"In order to previously assemble all the parts and then put the pump into the well and fix it in position therein, I provide a system of wedges 33, which serve to fix the pump in place and hold it in the proper vertical position, designed to be operated by means from the top of the

well, avoiding the necessity of a man's going into the well in order to fix the pump in place."

And lines 28-35, page 2:

"Thus in order to obtain greater power and fix the wedges more securely in place, it will be observed that by pulling up on the rod 32, the toggle links 34 will cause the wedge blocks 35 to press with great power against the wedges 33, and thus fix the pump casing in place wherever desired."

And again lines 105-111:

"The wedge system illustrated for tightening the pump casing in place may also, if desired, be used to *center it* with respect to the casing. The outlet pipe 23 is also preferably made in sections to correspond with the sections of the pump shaft casing." (*Italics ours.*)

And again lines 120-124 (R. 1003):

"A series of co-operating wedges 62 may also be provided, suspended from the platform 61 by means of the screws 64, and the two series of wedges surround the whole casing."

And again page 3 (R. 1004):

"It will be seen also that the toggle levers used for actuating the wedges may be used or not, as desired, since the wedges alone will be amply sufficient in the apparatus of Figure 1, as well as in that of Figure 10."

---

#### WEDGES ABANDONED.

As showing how impractical this "wedge system" is and that no part of the commercial success of

the plaintiff-appellee's pump can be attributed to this feature of the invention, see Mr. Layne's testimony on cross-examination (R. 594):

"XQ. For instance, taking Figure 5, the wedges, 33, which contact with the well casing, 16: Have you ever used those?

"A. At the time of my invention——

"XQ. Just answer 'Yes' or 'No.'

"A. We have not used a pump that would go in the bore of a well. . . .

"XQ. Please answer 'Yes' or 'No.' Have you used those wedges, 33, for the function specified in the patent, or at all?

"A. We have never used the wedges."

And as to the means for operating the wedges Mr. Layne testifies (R. 594):

"XQ. Have you ever used the toggle numbers, 34 and 35, which connect with those wedges?

"A. No, sir.

"XQ. Have you ever used the parts represented by the rods or links, 32, which connect with the toggles?

"A. No, sir."

And (R. 595):

"XQ. And, referring to Figure 1, have you ever used the sliding sleeves, 28, 31, for manipulating those respective links, 32, 29?

"A. They all refer to the wedges, which we have not used. [578]

"XQ. And, likewise, you have not used the stem members, above 27 and 30, to connect with those sleeves?

"A. We have not."

The importance of the functions to be performed by the wedges is repeatedly emphasized in the pre-

amble to the patent (R. 1002), where Layne says among his various objects are:

"to provide means by which a pump may be *placed in any desired position in a well, centered, raised or lowered and fixed in position* by manipulating from the outside entirely." . . . (Italics ours.)

And:

"to provide improved means for *centering and fixing* the pump in proper position in the well casing."

Again Layne says, lines 25-27:

"to provide improved means for manipulating the packing of the pump shaft."

This refers, of course, to the key rod 44, chain and sprockets 42, and the lower packing gland or stuffing box 41.

Again Layne says (beginning line 32, page 1):

"to provide a superior mounting for a centrifugal pump in the well, manipulated from the surface."

That agains refers to the toggles and links, sprockets and chains above mentioned.

The importance of the wedges is again emphasized in the preamble (line 37)

"to provide an *automatic centering device* for the pump in the well."

Layne admits, *supra*, that none of these centering and positioning adjustments have ever been put into use.

*These features form no part of the defendants' structure.*

---

**FUNCTION OF LOWER STUFFING BOX OR PACKING  
GLAND 41.**

The patentee having repeatedly stated that the form of Fig. 1 is the preferred form bears down on the importance of the pump shaft casing being closed both at top and bottom "to form an *air-tight chamber*" and "water kept out of the casing 20" (see page 3 (R. 1004), beginning with line 74):

"I consider it of great advantage also to arrange the pump shaft in a closed casing with stuffing box at surface of ground at top of pump, so that by the use of the packing boxes an air-tight chamber can be maintained, and water kept out of the casing 20, or kept filled with clean liquid, if desired, thereby providing an efficient lubricating system for all bearings of the pump."

The patentee repeatedly emphasizes that "the casing 20 is closed" and emphasizes the necessity and functions of the "stuffing box 50" and "the packing box 40." Thus on page 2 of the patent (R. 1003) line 58:

"At the top, the casing 20 is *closed* and is provided with a *stuffing* box 50, *closed* by the cap 51, at the top of the shaft 39." (Italics ours.)

And lines 66-72:

"The casing 20 also contains a tubular rod 44, which has a bearing in the block 47 on top of



is provided with a square opening which co-operates with the head of the screw 42, used for adjusting the cap 41 of the *packing box 40* for the pump, and compressing the packing in place."

---

**PACKING BOXES ABANDONED.**

This bottom "stuffing box 40" *has never been used* commercially by Layne (R. 595) where he testifies:

"XQ. Likewise, referring to Figure 5, have you used the stuffing box, 41?"

"A. No, sir, we never have in that particular form. We have used a brass or metal sleeve there, thorough lubricated, which performs the same function.

"XQ. Then your answer to my question is you never used the stuffing box, 41?"

"A. No, sir."

The lubricated "metal sleeves" referred to by witness does *not*, as the appellate court quite properly held in the Getty case, perform the function of the stuffing box 41.

(Note: It is not to be overlooked that the stuffing box 41 is shown in the patent *in addition* to the bearing below it. If it were not for the stuffing box, the oil in the tube would be sucked out around the bearing, due to the suction in the pump case. For that reason the patentee put in the stuffing box 41 to keep in the oil and to exclude the water. By so doing Layne brings about a condition made essential in claim 20 where he says: "a line shaft for the pump entirely closed off from the water in the well.")

The patentee next explains how this lower packing box is to be operated from the surface, or, as he says in the preamble, page 1 of the patent, lines 26-27:

“to provide improved means for manipulating the packing of the pump shaft . . . by means at the surface of the ground.”

He describes these means beginning with line 3, page 2 of the patent (R. 1003):

“In order that this cap 41 may be raised and lowered evenly, the screw 42 is provided with a sprocket wheel, and two other screws of a similar kind are distributed about the cap, as shown in Figure 6, and connected by means of the sprocket chain 46, so that by means of the tubular shaft 44, all three of said screws 42 may be turned at once to compress the packing in box 40.”

*Defendants do not use and never have used any “stuffing boxes” nor their equivalent.*

The attempt of one of plaintiff's experts to find equivalency between the lower “stuffing box” of the plaintiff and the open “drain tubes” or *anti-stuffing boxes* of defendants would be amusing if it were not for the fact that it seems to have been put forward under the cloak of sincerity.

---

**THIS LOWER PACKING BOX AN ESSENTIAL ELEMENT OF  
THE LAYNE PATENTED STRUCTURE.**

It was by means of this lower packing box of Layne whereby he might effectually exclude water

from the well, or as Layne says in his patent (p. 3, lines 77-82—R. 1004):

. . . “that by the use of the packing boxes an *air-tight* chamber can be maintained, and *water kept* out of the casing 20” (*italics ours*),

that Layne differentiated, if at all, from the prior art, in so far as “an enclosed line shaft” was concerned.

---

#### STUFFING BOXES ANOTHER ABANDONED FEATURE.

This adjustment means “for manipulating the packing of the pump shaft . . . from the surface” has never been used commercially, it being utterly impractical (R. 594). See R. 595, where Layne testifies:

“XQ. And you have never used the adjusting mechanism shown by the sprocket chain, 46, and the sprocket, 42, 42', 42", shown in Figure 6 of the patent?

“A. All being parts of the packing gland, we never have used it.”

---

#### EVACUATING THE OIL.

The means (pipe 44) for tightening the lower packing to make the same air-tight and water-tight performs also the function of evacuating the spent oil in the shaft enclosing tubing or oil reservoir. Thus says the patentee page 2 (R. 1003) beginning with line 83:

“This pipe or tubular shaft 44 also serves the purpose of providing convenient means for forcing the liquid out of the pump shaft cas-

ing. By forcing air in at the top of the casing 20, by means of the pipe 52, the liquid can be forced down to the bottom of said casing 20, and by means of the small opening 45, in the bottom of the tubular shaft 44, the fluid can be forced out at the top 54, and keep the casing clear in order to leave the bearings clean therein and not interfere with the working of the pump, or by forcing fluid in at the top 54, the operation will be reversed, and the fluid ejected from pipe 52."

---

**THIS OIL-EVACUATING MEANS ABANDONED.**

The pipe 44 with its double function of adjustment for the lower packing and for evacuating by air the oil reservoir enclosed by the casing 20, together with the vent pipe 52, has never been used commercially, being likewise utterly impractical, although undoubtedly novel with the patentee (R. 595) where Layne testifies:

"XQ. And you have never used the pipe, 44, which is shown in Figure 5, down to the bottom of the shaft tubing?

"A. No, sir, we never have."

The "air vent" of the patent is the short pipe 52 (see Fig. 7).

*Defendants have never used any of these devices.*

Layne's sectional shaft and bearing blocks 48 to carry the shaft sections are commercially impractical and never used. The patentee on page 2 of his patent (R. 1003) concerning the sectional,

extensible feature with slip joint arrangement of his shaft says, beginning lines 50-57:

"The weight of the shaft and pump below the block 47 is carried by the block 48; and from Figure 8 it will be seen that a similar arrangement is made at the top of the next section of the shaft casing, where the block 47' supports the weight of the section of shaft 39' by means of the collar 48', connected by a pin and key as before."

This feature is again emphasized on the same page, lines 97-104:

"It will be noticed that the weight of the pump and its shaft is supported at each end of the sections of the casing by the blocks 47, 47', etc. By reason of this arrangement the pump shaft and the shaft casing can be made in separable sections, and consequently the pump may be inserted at any desired depth and the parts assembled before putting them into the well."

*Defendants have never used the loose sectional construction of shaft nor the bearing blocks.*

*Moreover, this is another abandoned and impractical feature of Layne.*

(See Layne's testimony (R. 597) ):

"XQ. Now, referring further to the same drawing, have you ever used the sectional shaft, 39 and 39', with loose sliding connections at their abutting end? In other words, spline the shaft and giving the sections a limited movement with relation to one another?

"A. In our construction we have used in one or two instances a method of that kind, but

our general practice is to use the screw and flat coupling."

And R. 598 and 599:

"XQ. Such a loose coupling method would not permit of suspending the impeller from the top, would it?

"A. No, sir. That was intended for deep lifts, where the proposition was supposed to have been carried in different loads.

"XQ. Consequently, this method of impeller suspension and the shaft coupling have never been put into use by you?

"A. Only in a few instances.

"XQ. It never has become your commercial product?

"A. No, sir.

"XQ. You have never used the thrust collars, then, 48 and 48', have you?

"A. Not for thrust purposes, but for the shaft bearing purposes we have used them exclusively.

"XQ. You have used a single thrust collar, like 48, in Figure 5, at the bottom of your pump structure?

"A. We have never used the thrust collars in the two, only in very few instances; we have only used the collars connecting the shaft by thread methods.

"XQ. And you have done away with the use of the thrust collars, 48, that we see working on the bearings?

"A. So far as contracting the bearings, we have never used that as a commercial product, containing the bearings for thrust purposes."

*Defendants have never used any of these abandoned features nor any equivalent therefor.*

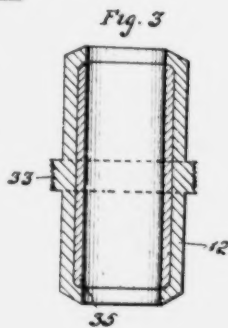
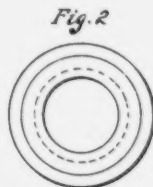
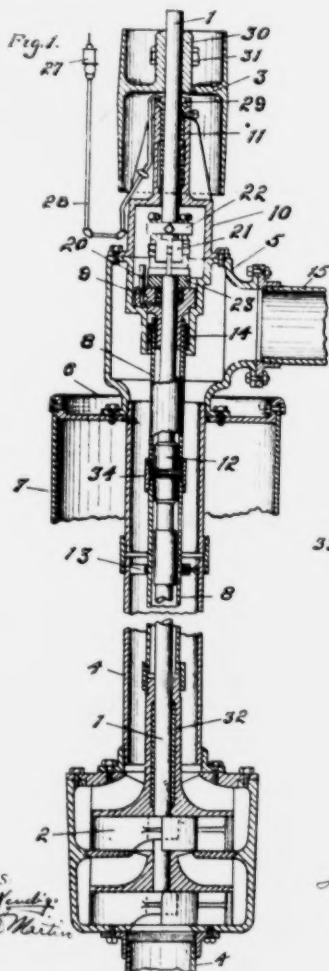
M. E. LAYNE.  
WELL MECHANISM.

APPLICATION FILED MAY 17, 1912.

Reissued Sept. 24, 1912.

13,467.

2 SHEETS-SHEET 1.



WITNESSES  
*John H. Smith*  
*Archibald Martin*

*M. E. Layne* INVENTOR.  
BY *Paul Synnstedt*  
ATTORNEY.





### THE ABANDONED FEATURES.

Layne's structure, stripped of the abandoned features above, leaves a skeleton differentiated with difficulty, if at all, from the prior art.

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### LAYNE'S COMMERCIAL PUMP BUILT UNDER A SUBSEQUENT PATENT.

It is quite proper to point out that the actual Layne commercial structure introduced in evidence by plaintiff as Exhibit 8, but not explained, and claimed to be its present commercial pump, is *not* made according to the patent in suit, but is made under the later Layne Reissue patent No. 13,467, dated September 24th, 1912, (see cut on opposite page). This patent was identified (R. 587-8) as being one of the patents under which the commercial pump is marked as patented. Claim 12 thereof reads as follows:

"12. In combination, a pump, a drive shaft therefor, a series of bearings for the shaft, a shaft casing inclosing the shaft and supporting the bearings and preventing access of the fluid while being pumped to such shaft and bearings, and a discharge casing inclosing the shaft casing whereby the fluid from the pump is carried upward in contact with the exterior of the shaft casing."

If we were to substitute this reissue for the patent in suit we might see some possible basis for the claim of "commercial success" and for the trial court's view as to what constituted the Layne "concept."

## THE LAYNE FILE WRAPPER.

(*Defendants' Exhibit "D," R. 957.*)

The Layne file wrapper is here referred to in connection with the limitations imposed upon the Layne patent by the actions in the Patent Office and as showing what Layne and his attorney considered Layne's "dominant idea" in securing his patent. It was the *combined feature* of a *shaft enclosing casing*, wherein its bearings "are," to quote applicant's attorney, "*completely closed off from the water in the well*" with "the line shaft supported at various points in the various sections" and with means for supporting the pump "at any desired point in the well." The court in the Van Ness and Getty cases has pointed out that this latter feature of the adjustable support in the well means the complicated and discarded system of wedges.

Several patents were cited against Layne, but the only ones to which we need to call attention is the Crannell patent in evidence as defendants' Exhibit "G," *supra*. The Eisler patent, *post*, which is here in evidence, was apparently overlooked by the Patent Office. The fact that Eisler was not cited weakens rather than strengthens the presumption that accompanies the issuance of a patent in favor of its validity. (*American Co. vs. Sample*, 130 Fed. 145, 149 (C. C. A. 3rd Circuit).)

The Layne patent application was filed April 28th, 1903. That is the very earliest date, as we will see, that Layne can claim as his invention.

As originally filed the application contained twenty-four claims, all of which, except six, were rejected. Although this rejection was on June 2d, 1903, no reply was filed thereto until January 30th, 1904, and considerably subsequent to the issuance of the Alvord patents and what is significant, it was subsequent to the Pabst installation of the Byron Jackson encased line shaft pump at Milwaukee.

---

**LAYNE'S AMENDMENT OF JANUARY 30th, 1904.**

In this amendment of January 30th, 1904, Layne amended his application, filing several new claims including 'present claim 20 in controversy, but did not accompany this amendment with any Supplemental Oath. It is to be presumed as a matter of law that Layne and his attorney had meanwhile become acquainted with the Alvord patents which had issued during the year 1903, and applied for before Layne's application, and had noted that Alvord showed a shaft tubing but that this shaft tubing was not "entirely closed off from the water in the well," but had openings in it through which water could pass. These Alvord patents being public documents, Layne and his attorney were charged with notice of them and of their contents.

Again, in view of the correspondence passing between the Byron Jackson Iron Works and the Peden Iron & Steel Co., evidenced by the letter introduced by plaintiff herein (R. 873), and in view of certain other correspondence between the parties

which plaintiff did not see fit to introduce, and, in view of Mr. Bowler's naive letter of November 13th, 1911, to "Friend Layne" (R.870), it is reasonably inferred that Layne had wind of the Pabst installation where there was an enclosed line shaft primarily designed *to close off the shaft bearings from the water in the well.*

There was in the Pabst case the very intent and purpose of *closing off the water in the well from the oil in the shaft casing*, as far as practically possible and by means substantially identical with defendants' present mode, for in Pabst, as will be pointed out, the oil passed out from the casing into the well through drawn tubes (R. 166. ) just as in defendants' case. Whatever the presumptions and inferences are, Layne's claims, and particularly claim 20, had their first concept at this time of the Pabst installation and before Layne's amendment of January 30, 1904.

The significance of the foregoing finds its parallel in the recent case of Superior Skylight Co. vs. August Kuhnla, Inc., 265 Fed. 282, 284 (quoting from Lyon Non-Skid Co. vs. Hartford, 247 Fed. 524) wherein Judge Manton said at page 536:

"A series of amendments were filed within a month in the Fageol application before the Lyon patent was issued, in an effort to secure claims broad enough to affect the Lyon patent, and in this way many, if not all, the claims in suit were inserted and radically modified. This may have been brought about by the successful and extensive use of the Lyon bumper. The court should not lend its aid to such an effort of an enterprising patentee. Lovell vs. Oriental Co., 231 Fed. 719, 146 C. C. A. 3. The Lyon con-

struction and operation was new in Lyon's work in 1911, and is covered by his patent in suit. Lyon gave his valuable invention to the public. Fageol gave a different type of rigid bar bumper which proved to be impracticable and a failure commercially. It inevitably follows that Lyon should have full credit for the success and the protection of the court.' "

To that case we might add the observations of the Court of Appeals of the 2nd circuit in *Stafford, Inc. vs. Thaddeus Davids Ink Co.*, 264 Fed. 111, 114:

"As for the rest the plain effort of plaintiff to 'lick into shape' some new claims that would read directly on what a competitor had just put out, is not attractive, and justly leads any court to scan closely claims so composed" (citing *Lyon, etc., Co. vs. Hartford*, (D. C.) 247 Fed. 524, affirmed 250 Fed. 1021, 162 C. C. A. 664).

Reverting to the File Wrapper, Layne's attorney argues in his amendment of January 30th, 1904:

"The examiner's attention is first called to the fact that in applicant's device the line shaft and all its bearings *are completely closed off* from the water in the well and that the line shaft is supported at various points in the various sections, and that either in the device of Figure 5 or in the device of Figure 10, the outlet for the water from the pump is independent of the casing which surrounds the line shaft, and in case the pump casing is sealed off completely as in Figure 10 the discharge may be through the upper end of the well casing and still the *water does not come in contact with any of the bearings or the line shaft.*" (Italics ours.)

These admissions in the Patent Office should be regarded as the expressions of a competent expert, *Sugar Co. vs. Yaryan*, 43 Fed. 140.

As further emphasizing this "entirely enclosed" feature, Layne says:

"It is not supposed that this applicant is the inventor of the broad idea of using a wedge for fixing a device at a particular point in the well casing, but only that he is the originator of the idea of operating and tightening mechanism for the pump by *means entirely enclosed in the shaft casing and not exposed* to the deleterious effect of the water being pumped through the well." (Italics ours.)

(Note: This shows another reason for "entire closure" in that the *tightening* means for the *lower gland* are *not exposed*.)

And still not to lose sight of this important feature he says further:

"In fact none of the references show a *closed driving shaft* casing which extends from the top of the well to the pump and being affixed to the pump in the well casing. These *two features* are necessarily combined because the *essential thing of the invention* is the drawing up of the water from below the pump and discharging it through an outlet which is independent from the casing enclosing the bearings, *whereby the bearings are entirely protected from the flowing water.*" (Italic ours.)

(Note: "Protection from flowing water"; not sand, but *flowing water*. Western Well is not protected from "flowing water" though it is partially protected, of course, from sand.)

*“Entirely”*: If we refer to the lexicographers to ascertain what Layne meant by the words “entirely enclosed” as used repeatedly in his arguments above, we need but refer to the Standard Dictionary, which thus defines the word “entirely”:

“without diminution, exception or qualification; wholly; completely.”

The reference Crannell is given special consideration; Layne emphasizing that Crannell “cannot be fixed at any desired point in the well” and that “the lower bearings in the (Crannell) pump are directly exposed to all the sand and detritus in the water” (so is the Western Well Works for that matter).

As to the Northam patent, which we have introduced simply to show a jointed shaft for a turbine pump, from all appearances, seems adaptable to bored wells, Layne’s attorneys argued before the Patent Office:

“It does not appear how the Northam pump can be held to show an extensible shaft inasmuch as the shaft that belongs to any one of the pumps is not extensible and the only way to extend the shaft at all is to put in a new pump. In other words each one of the pumps and its shaft is independently supported, but there is no extensibility of the shaft to any one of the pumps.”

(It would appear to be true that the Western Well Works pump, being supported as it is by the discharge column, is independent of the shaft. Each

is independently supported and our shaft is no more extensible than Northam's.)

We thus see that applicant presented as the essence of his invention the drawing up of water from below the pump and discharging it through an outlet which is *independent from the casing enclosing the bearings*, by means of a driving shaft casing 20 closed by stuffing boxes 40 and 51 and a separate and independent discharge pipe 23, together with means, such as the wedges 33, for fixing the pump within the well casing.

After various colloquies extending over a period of a couple of years, *and after the Byron Jackson unpatented pump had received wide vogue*, the Layne patent issued on May 29th, 1906.

---

#### LAYNE A MERE PAPER PATENT.

From the File Wrapper and the surrounding circumstances in connection with this application and the fact that the patented structure is uncommercial and impractical, it is apparent that the patent in suit is a mere paper patent at best and must be narrowly construed and however construed in the light of the art and of the proceedings in the Patent Office defendants' structure cannot be held to be an infringement.

Plaintiff's efforts to expand its patent beyond its true meaning recalls the case of *Detmold vs. Reeves, et al.*, 1 Fisher 127, 131, where Kane, J. took occasion to say:



"But the contract of the public is not with him who has discovered, but with him who also makes his discovery usefully known. If he has discovered much and discloses little—if there has been revealed to him one of the *arcana* of nature, and he communicates to the world only one or more of its derivative and secondary truths, he patents no more than he has proclaimed. He will not be allowed afterward, when the extent of his right shall be the subject of controversy, either by expanding into a general expression what was limited before in a particular form, or, by tracing out for us the line that leads back from consequences to remote causes, to initiate us, inferentially, into the radical mystery of his invention, and then argue that he had described it by implication from the first, and so claimed ownership of it in his patent."

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PRIOR ART.

*History of the Small Bore Deep Well Centrifugal Pumping Mechanism.*

Plaintiff would have the court believe that centrifugal pumping mechanism for deep wells of small bore was unknown prior to the date of Layne's alleged invention. With this in view plaintiff introduced a self-serving drawing of a pit pump (plaintiff's Exhibit 2) and Layne testified, but without corroboration, that this represented the general practice prior to his supposed invention. There is not only ample evidence in the record to show that small bore wells, and deep well suspended pumps were old before Layne, but to show the "pit pump" is a popular favorite and rival to both plaintiff and defendants' pumps today (R. 784-6).

British patent No. 24,430 to Mather, dated January 19th, 1895 (R. 1040) (see cut opposite) shows a deep well of small bore provided with a centrifugal or rotary pump which is operated by a shaft driven from the surface of the ground. The specification states:

“My invention relates to apparatus for pumping water from well bores so arranged that the pump can be readily adjusted in position and power to suit *greater or less* depths of bore.

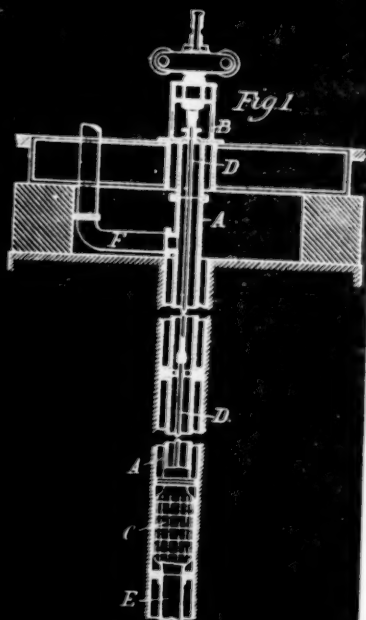
“For this purpose I extend down the bore a pipe which is the delivery pipe of the pump and in this pipe there is a spindle which is driven at the top of the well by any suitable motor, and which works a rotary pump or special construction attached to the pipe.”

British patent No. 2774 to Thomson, dated November 13th, 1860 (R. 1052) (see cut opposite) also shows a rotary or centrifugal pump which is adapted to be inserted in a deep well of small bore. It is suspended from the top of the well by the discharge casing A and is driven by a sectional shaft which is supported in bearings b, d and c. The specification states:

“Figure 3 in the accompanying Drawing shows one of my improved pumps with two revolving wheels placed in connection with each other, in such a way that the water discharged by the lower wheel passes into the suction part of the upper wheel; by this means I can raise water or other liquids *to any height* with the same speed of revolution of the wheel that would be required for half the height with one wheel; and, if necessary, three or more wheels may be placed in conjunction in a similar man-

A. C. 1894 No. 45, 460  
THOMSON & STEADMAN

MATHER (BRITISH)  
No. 54,480, Dec. 18, 1894.



OLD EXAMPLES OF PENDENT STRUCTURES FOR BORED WELLS



E. M. IVENS, Dec'd.

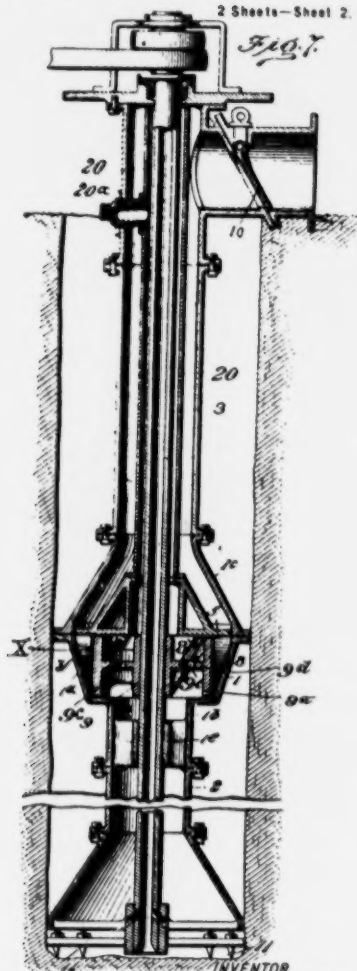
H. K. IVENS, Administrator

PUMP MECHANISM.

Application filed Apr. 30, 1901.

Patented July 29, 1902.

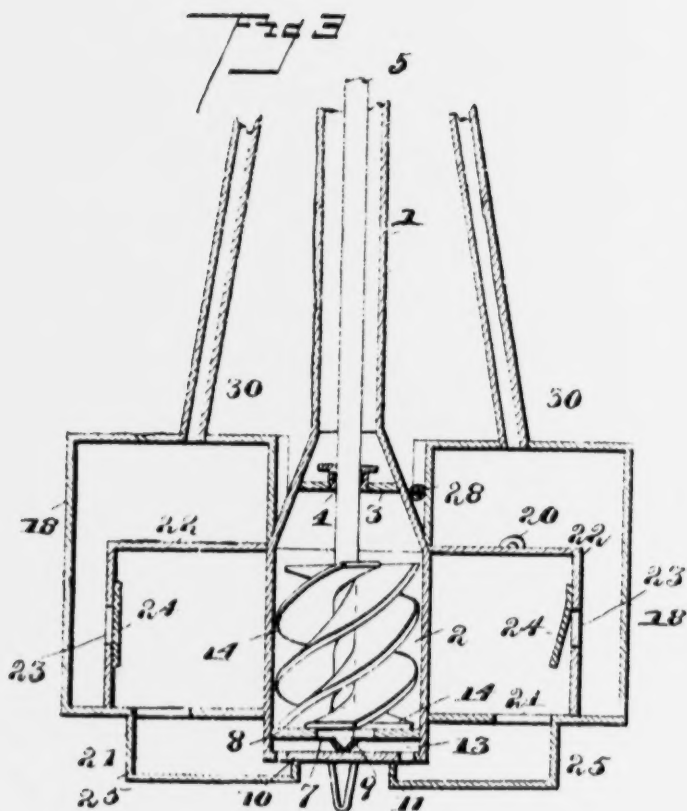
2 Sheets—Sheet 2.



INVENTOR  
Edmund M. Ivens

BY  
And G. DeBuck & Co.  
ATTORNEYS





CRANNELL PATENT  
Defendant's Exhibit "G," R. 1025





ner with the effect of still further reducing the necessary speed of rotation."

United States Patent No. 705,844 to Ivens, July 29th, 1902 (R. 1058) (see cut opposite) also shows a small bore deep well pumping mechanism. The specification states:

"My present invention is in the nature of an improved centrifugally-operating pumping mechanism adapted for use in *deep wells* and for lifting water from bayous and lagoons for irrigating purposes; and it comprehends, generically, a casing having a lift-pipe and a discharge-pipe connected thereto, a centrifugally-operating pump-disk held within the casing, and a specially-arranged means for passing the water through the casing in an annular and upwardly inclined direction."

It is interesting to note that Layne's patent nowhere refers to a deep well.

Plaintiff argues that these prior pendent pump structures fitted in deep wells of small bore failed to afford adequate protection to the bearings of the line shaft. Such an argument overlooks the fact that protecting casings for this purpose are old and well known in the same art (see *post*, for instance, United States patent No. 425,933 to Crannell, April 15th, 1890, and No. 522,518 to Eisler, July 3rd, 1894).

---

#### THE CRANNELL PATENT.

(*Defendants' Exhibit "G."*)

The Crannell patent, a cut of Figure 3 of which is shown on the opposite page, is described with

respect to its pertinent features by Prof. Lesley as follows (R. 184):

“Figure 3, No. 1, shows a shaft-enclosing casing; No. 2 shows what is termed in the patent a cylinder which corresponds to the pump bowl of the patent in suit, No. 21. No. 3 shows what is called a diaphragm plate forming a closure between the pump bowl and the shaft-enclosing casing. No. 4 is termed in the specification an aperture through which the shaft may pass. The specification states that the shaft is properly packed at this point, that is, at the bottom of the line shaft. No. 5 is the shaft which is surrounded by the enclosing casing, No. 1. No. 14 is the runner or impeller; in this instance it is an impeller of the screw type, not of the centrifugal type.”

Concerning Crannell the court in the Getty case said (262 Fed. 141, 143):

“The Layne patent too nearly resembles the Crannell patent to be called a pioneer patent.”

And Judge Jack in his opinion has said:

“The Crannell apparatus, which was not a commercial success, provided for a closed casing around the shaft transmitting power to a rotary pump, but did not provide intermediate bearings along the line of the shaft. This absence of intermediate bearings is practically the only difference in principle between the two mechanisms in so far as claims 9 and 20 are concerned. It is urged by the defendant that the adding of intermediate bearings to prevent the shaft from whipping does not involve invention, that it is something that would occur to anyone skilled in the art, and that, likewise, the method of oiling by letting the oil run down from bearing to bearing, would occur to anyone.

and had always been the method of oiling vertical shafts.

"The court is much impressed with this argument. The insertion of additional bearings to prevent whipping of the shaft where the distance between bearings is too great, is as simple and natural a thing to do as the putting in a fence of extra posts to prevent sagging of a barbed wire, where the posts of the panels are too far apart. Were the question a new one, *I should be inclined to hold the patent invalid*, but the same issue was raised and directly passed on by this court and by the Court of Appeals for this circuit, in the Van Ness case sustaining the patent.

"It is contended by the defendant herein that the evidence in the Van Ness case was to the effect that the Crannell pump would not work, whereas, by physical demonstration on the trial of this case, the contrary was shown, and the court therefore should not feel bound by the ruling in the Van Ness case. The opinion in the Van Ness case, however, does not appear to have been based on the evidence that the Crannell patent would not work." (*Italics ours.*)

If it is urged that the Crannell patent is merely a paper patent, that is met by the holding of ~~our~~ *the* Circuit Court of Appeals in Wonder Mfg. Co. vs. Block, 249 Fed. 748, 750, where Judge Gilbert said:

"It is contended, also, that the Nathan patent is without probative value, for the reason that it is but a paper patent, and that there is no evidence that the invention has ever been used. But that fact does not affect its value as evidence upon the question of infringement."

As a consequence one of the patents in that suit was held void for lack of invention over Nathan even though Nathan had not been pleaded.

**THE EISLER PATENT.**

The Eisler patent and a model of same are in evidence, respectively, as defendants' Exhibits "F" and "X"; the patent drawing being shown on the opposite page. Concerning Eisler, Prof. Lesley says (R. 185-187):

"This is a model (defendants' Exhibit 'X') of the Eisler patent as disclosed by the drawing, particularly with reference to Figures 1 and 4, and by the specifications which follow on the succeeding pages. There is provided in this structure a column construction which, as the inventor states, is supported by means of four columns, numbered here 6. To these are fastened an outer casing, No. 7, and an inner casing, which is numbered, as in the patent, No. 4. There is provided a shaft, which is suitably supported by bearings, No. 19, No. 23, 18 and 17 in the bottom. These bearings are carried upon floors Nos. 9, 10, 11 and 12, and also No. 8. These floors, as stated by the inventor, are spaced at suitable intervals around the casing to properly steady and line the shaft. The shaft is provided with vertical adjustment by means of set collars, No. 20 and 22, which may be adjusted in position, and thereby the shaft raised or lowered, and fixed in any desired position, and any vertical motion prevented; a further set collar is particularly called attention to at the bottom—over the bottom bearing—which, as the inventor says, is designed to exclude the sand. Between the inner casing, No. 4, which fits into an enclosed shaft and the outer casing, No. 7, are what are called water passages in what we would term the water discharge column, which provides for the passage of water upward as it is impelled by the runner of the pump. The water is drawn into the pump through ports in the side of the outer casing, entering the suc-

(No Model.)

S. N. EISLER.  
ROTARY PUMP.

No. 522,518.

Patented July 3, 1894.

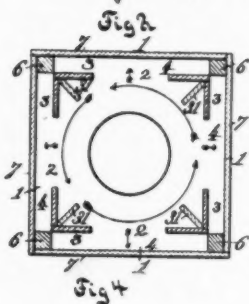
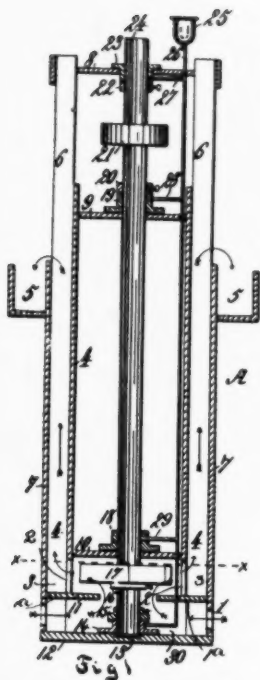
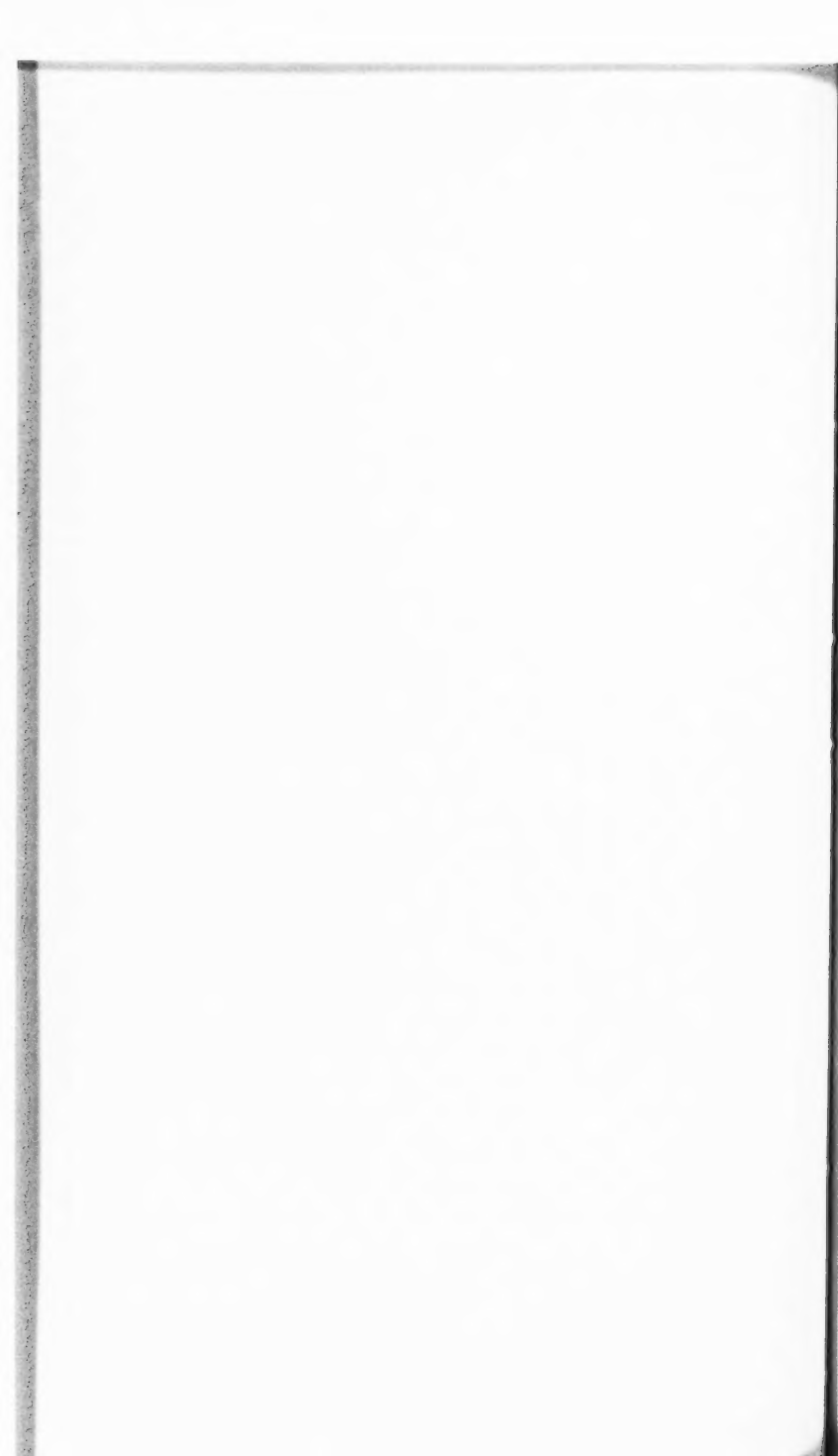


Fig. 3.

Witnesses  
*Robert E. Rice.*  
*Sidney B. Cook.*

Inventor.  
*Stephen E. Eisler.*  
By *Walter H. Cook*  
Attorney.



tion chamber just below the floor, numbered 11. It then passes upward through a central port and by the action of the impeller, which is shown here as No. 17, is forced out the port, out the bottom of the shaft-enclosing casing, into the passage which leads upward. He calls attention to the fact that this casing extends above the outer casing, so that any water that comes up these passages is spilled over here, and not into the casing around the shaft. A lubricating feature, to which he calls particular attention, is provided, a pipe not numbered in this exhibit—I believe the pipe is 26—which has branch pipes, and they are numbered 27, 28, 29, and they lead to the various bearings, even to the bottom-most bearing of the pump. There are shown in the model and in the patent drawings the intercepting plates No. 31; they are shown in section here; they extend inward radially from the corner of the shaft-enclosing casing, extended downward, and are designed to perform a similar function as that of the so-called diffusion vanes of the more modern turbine pump. The inventor states without them the water would probably circulate continuously in there. It appears that he did not know the entire theory of the turbine pump when he made this design. *There are provided in this structure three functions: exclusion of water and detritus from the shaft, and positioning and alignment of the bearings for a shaft, and in this case a means for lubrication which is not, in itself, the shaft-enclosing casing.*" (Italics ours.)

The fact that the Eisler patent may be a so-called paper patent does not prevent its being considered a good reference for everything that it discloses. (Block vs. Wonder, C. C. A., 9th Cir., 249 F. 748.)

Further than that, the Eisler patent is entitled to additional consideration by reason of the fact that it was *not cited* by the Patent Office in connection with the Layne application.

As said by the Circuit Court of Appeals for the Third Circuit in *American Soda Fountain Co. vs. Sample*, 130 Fed. 145, 149:

“We do not agree with the contention that the fact that the file wrapper discloses the patent to have been granted as first applied for, without any references, adds any force to the presumption of novelty arising from the grant. On the contrary, we think the force of that presumption is much diminished, if not destroyed, by the lack of any reference by the Examiner to, or consideration of, the ‘Clark’ patents.”

As for being entitled to claim credit for the commercial development of the small bore deep well pumping mechanism Layne is hopelessly outclassed. The testimony of Daniel W. Mead and John W. Alvord, two civil engineers of high standing, shows clearly in what manner the commercial development of this type of pumping mechanism received its start.

Mr. Mead testified at R. 41-42:

“Well, I am obliged to refresh my memory in regard to the date of a paper that was prepared by Nicholas Simin, who was a civil engineer, an engineer of the water works of Moscow, Russia. He came to this country in 1901——

. . . Mr. Simin read a paper on the water supply of Moscow, that may be seen in the Proceedings of the American Waterworks Associa-



tion, 1901, pages 33 to 41. In this paper Mr. Simin described certain centrifugal pumps which had been installed by a manufacturing concern, Farcoe, I think it is, of Paris, France, installed by this company in the Moscow waterworks for raising water from deep wells to the surface; which consisted, as I recall it, of a single centrifugal pump, driven at a high rate of speed, which was sufficient to pump the water for some considerable distance from below the surface to the surface.

"On account of the problem which was continually before my office at this time of securing quantities of water from wells of this nature, and the difficulty previously mentioned due to reciprocating machinery and its constant wear and breakage, the method used in Moscow appealed to me as of considerable interest. In that connection I wrote to the Byron Jackson Machine Works, or to Mr. Byron Jackson, who had manufactured pumps for me before, and inquired as to whether he would undertake to manufacture a pump of generally the same character as— . . . those they used in the Moscow waterworks."

(Mr. Mead's correspondence with Byron Jackson will shortly be referred to.)

Mr. Alvord likewise gives credit to the article which appeared in the proceedings of the American Waterworks Association describing the Moscow project. His testimony is as follows:

"The matter of the deep well pump was one which presented itself to my mind during the summer of 1901. There was obviously a need for better means for lifting water from deep artesian wells in Northern Illinois, and the region centering there, and there was no adequate ap-

paratus at that time which would lift large quantities of water economically from such wells. My attention was first definitely called to the possibility of such an apparatus by a paper published [351] in the American Water Works Convention in the Summer of 1901, in which an attempt at Moscow, Russia, was the subject of a paper, and there was described there certain pumps inserted in wells for this purpose. It appeared to me, from a study of this paper, that these pumps were defective and could be improved upon, and during that year I revolved the matter over considerably. In about February, 1902, I was engaged by the President of the Chicago Clearing & Transfer Co., having large property interests southwest of Chicago and outside of the city limits, beyond the reach of any ordinary water supply, to investigate and report to him on the best methods of drawing water from wells in that neighborhood. I advised Mr. H. H. Porter, the president of the company, that this was a problem which was difficult because no appliance was then on the market which would adequately do this work, and that it was obviously desirable to invent and originate some appliance for the purpose. Mr. Porter encouraged me to look into the matter further, and on or about April 8th, as disclosed by me in former testimony at a former hearing, my diary shows that I adopted a definite idea for the purpose, and a day later disclosed this same to Prof. Daniel W. Mead, Professor of Hydraulic and Sanitary Engineering of University of Madison, Wisconsin. Sometime between the 8th of April and the 14th, I made certain sketches in a note-book in which I was recording investigations at Clearing for such a device. The first— There are three sketches in this note-book, and the first two of them I identify as being between the 8th and

the 14th of April, 1902, because on the second page of the note-book I find the date reading as follows: 'From Mr. Shire April 7, 1902.' Mr. Shire being the [352] Chief Engineer of the Chicago Clearing & Transfer Co. at that time. On the page following the second sketch I find an entry reading as follows : 'From Lawrence Machine Company April 17, 1902.' The first of these sketches shows a horizontal section of a deep well with an *inclosed shaft* in the center, the shaft being 1 inch in diameter, the tube surrounding and inclosing the shaft being  $1\frac{7}{8}$  inches outside diameter, and the well being  $5\frac{3}{4}$  inches internal diameter. The apparent purpose of this drawing was to compute the area available for the flow of water after inclosing a shaft in the center of the well. The second sketch, two pages following in the same note-book, shows two vertical sections of a shaft and its *inclosed casing*. The section on the left shows the shaft with a coupling, an *inclosed casing* with the coupling, a bearing upon which the shaft revolves, and a screw device by which such *inclosed shaft* and casing can be adjusted so as to be vertical within a well whose walls are not exactly vertical. The drawing on the right also shows a vertical shaft, an inclosed casing with a shaft coupling, a casing coupling with interior screw coupling, and a wooden bearing upon which the shaft revolves."

The sketches referred to by Mr. Alvord are in evidence as defendants' Exhibit A-4. Mr. Alvord is the patentee of United States Patents Nos. 735,690, 735,691 and 735,692 of August 11th, 1903, to which reference will be made later.

In all of Mr. Alvord's patents he refers to the fact that he is dealing with pumps for *deep wells*, 100 feet or more in depth, and in each of *his patents* he shows a *protecting casing* for the drive shaft.

**LAYNE'S CONCEPTION ALLEGED TO HAVE OCCURRED IN LATE  
SUMMER OF 1902 BUT NOT PROVEN.**

Layne at this time was working in the rice fields of Texas and perhaps was also familiar with the Moscow project. The earliest date claimed by Layne for conception of his alleged invention was the late summer of 1902, and as to this the showing is woefully weak. No drawings, models nor sketches are offered to substantiate this date. Layne's sole corroboration is a witness by the name of Woodburn who testified at R. 861-62 concerning an alleged conversation with Layne and some "pencil marks on the side of the building" made at the time.

Strong suspicion attaches to this testimony for the reason that Woodburn recalled nothing whatever about the wedge system which makes up 90% of the Layne patent and he attributes functions to the shaft enclosing casing which are not specified in the patent.

There is nothing in the record showing activity on Layne's part from the time of the alleged barn-door sketch of 1902 until he filed his application on April 28th, 1903.

---

**LAYNE IS LIMITED TO APRIL 28th, 1903 (His Filing Date)  
AS HIS DATE OF INVENTION.**

Woodburn seeks to fix the conversation taking place in 1902 by a recently discovered memorandum book whose character and existence and custody remain unexplained.

No. 725,892

PATENTED AUG. 11, 1903

No. 725,891

PAT. WILD AUG. 11, 1902

PATENTED AUG. 11, 1903

J. W. ALVORD  
HIGH SPEED ROTARY PUMP  
APPLICANT FOR PAT. MAR. 26, 1902

NO MODEL.

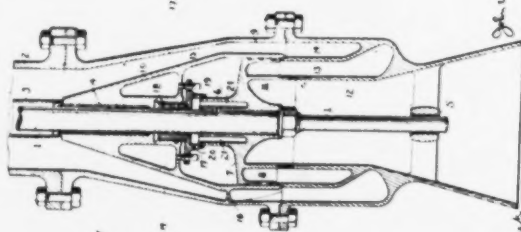
SIX SHEETS, SEVENTH.

NO MODEL.

J. W. ALVORD  
HIGH SPEED ROTARY PUMP  
APPLICANT FOR PAT. MAR. 26, 1902

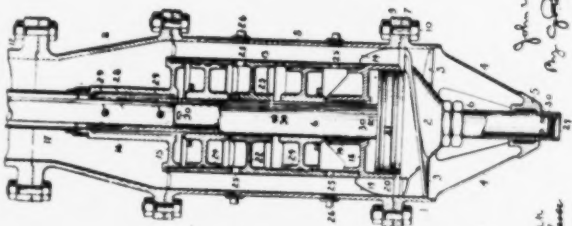
NO MODEL.

MEANS FOR ALIGNING PUMP CHAMBERS IN WELL CARTRIDGE  
APPLICANT FOR PAT. MAR. 26, 1902

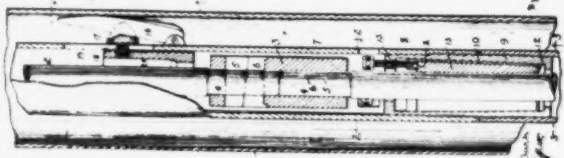


John W. Alvord  
Inventor  
Richard B. Clapp  
Attorney

John W. Alvord  
Inventor  
John A. Clapp  
Attorney



John W. Alvord  
Inventor  
My. Goodwin  
Attorney



John W. Alvord  
Inventor  
Goodwin  
Attorney





"Where the date of use of an alleged anticipating device is shown beyond doubt, the burden rests on a subsequent patentee to carry his invention back to an earlier date, and for that purpose oral testimony alone is not sufficient."

National Machine Corp. Inc. v. Benthall Machine Co., 241 Fed. 72.

See also the observations of Mr. Justice Bradley in *Atlantic Works v. Brady*, 107 U. S. 102, 27 L. Ed. 440:

"Interested as he is in the result of the suit, his own testimony cannot be allowed to prevail against a course of conduct so utterly at variance with it. It may be true; but we cannot give it effect against what he himself did, and did not do, without disregarding the ordinary laws that govern human conduct. . . . Sufficient appears, however, notwithstanding the evidence adduced to the contrary, consisting mostly of the testimony of the complainant himself, to convince us that Brady derived his whole idea from the suggestions of General McAlester;" . . .

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### Re: Alvord Patents.

#### ALVORD PRIOR INVENTIONS.

The deposition of Mr. Alvord, of Chicago, Illinois, is in evidence on the question of *prior invention*. (The court, of course, will not confuse this defense with that of "anticipation" and "prior publication".) Certified copies of the file histories of Alvord's three patents (see opposite page), are in evidence, not for the purpose of showing "anticipation" or "prior publication," but "prior in-

vention". The grant of a patent raises a presumption that the patentee was the original inventor of the thing patented and the invention was made at the time the application was filed, and one claiming priority of invention has the burden of proving, by evidence which is clear and certain, that the invention was conceived and reduced to practice by another prior to the date of application. (Consolidated Ry. Electric Lighting & Equipment Co. v. Adams & Westlake Co., 161 Fed. 343, C. C. A. 7th Circuit.)

The dates of application of the several Alvord patents are as follows:

Filed Nov. 17, 1902—No. 735,690—Issued Aug. 11, 1903 (R. 930).

Filed Dec. 24, 1902—No. 735,691—Issued Aug. 11, 1903 (R. 935).

Filed Mar. 30, 1903—No. 735,692—Issued Aug. 11, 1903 (R. 944).

The "shaft casing" of the first patent (see opposite page) is number 7 in the drawings; the patent saying (p. 1, lines 54-63):

"The shaft is inclosed in a shaft-tube 7, made in suitable lengths coupled together and considerably less in diameter than the well-casing, so as to leave an annular space 8 between them for the water to flow up through. At suitable points in the tube are bearings for the shaft, consisting preferably, of a bushing 9, rigidly secured in the tube, as by the screw-threads shown, and slightly tapered internally."



Moreover, practically *all the claims of Alvord, feature "a tube inclosing said shaft"* (claims 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12). Thus claim 7 for example:

"7. The combination with a well-casing, of a rotary pump-shaft therein, a tube inclosing said shaft, bearings in said tube, braces hinged to said tube, and means for locking said braces."

This patent (No. 735,690) has to do with the very thing Layne lays such great store on in his patent: "enclosure," "bearings in the tube," and "alignment."

The second Alvord patent has the protective shaft tubing 17.

In the third Alvord patent the shaft inclosing tube is numbered 3; the patentee saying (p. 2, lines 4-6):

"The rotatable pump-shaft 1 passes down through the uptake or delivery-pipe 2, being preferably inclosed in a casing 3."

The Alvord defense takes on added interest in this suit over and against anything appearing in the prior litigation where Alvord was relied on to show *anticipation*; for as Mr. Alvord testified (R. 377):

"On the 2d of February, 1920, Mr. J. B. Harmon, whose card left with me shows him to have been sales engineer of the Layne & Bowler Co. with headquarters at Memphis, Tenn., called at my office and took up the matter of my patents in connection with his own company's operation. Mr. Harmon represented that, in his

opinion, Messrs. Layne & Bowler were developing their ideas in the Patent Office on or about the time when I was at work similarly in developing my ideas. Mr. Harmon inquired what I would expect to receive for my patents in the matter and I named him a price of \$5,000. Thereupon he asked me if I would give him a short option on that amount, and I gave him a thirty-day option for the purchase of the patents. Mr. Harmon represented to me that those patents would be quite valuable to his company; that they were doing a large business in the sale of these pumps, amounting, as he said, to some \$3,000,000 per year, and that the rice industry could not have been promoted without the use of the pumps in question and the improvements which they and I had made. He further stated that if the Layne & Bowler Co. should own my patents they could undoubtedly collect royalty from other companies who were using the same, and that he could recommend to Mr. Layne promptly the purchase of my three patents. Whereupon I had written out my proposition in writing, signed it and gave it to him on that date."

The letter referred to is in evidence as defendants' Exhibit "A12" and set out in the record at R. 655 reads:

"In accordance with our conversation this afternoon, I would propose to sell the Layne & Bowler Company all right, title and interest which I have in the patents relating to deep well pump shaft alignment and other related contrivances with reference to vertical centrifugal pump equipment, all for the sum of \$5000 cash, with the understanding that these patents be used by your company, being known as the Alvord patents numbered as per Patent Office; and the further understanding that this proposition is accepted within thirty days from the

date of your offer. I will further support said patents by competent testimony in court, if called upon to do so, at the rate of \$100 per day and necessary expenses."

This interview and letter of Mr. Harmon (occurring *after* defendant's notice of taking testimony) taken in connection with Harmon's interference with the witness, Classman, and the reluctance of these men to testify, particularly Alvord (R. 305-351 inc.), until the option expired March 2, 1920, and which ordinarily would have carried defendants' time beyond Rule 47) seem to point their own moral.

Layne's patent, both as to anticipation and as to the presence of invention, must be judged upon the basis of *prior knowledge and invention* of which Alvord's applications are a part.

Concrete Appliance Co. v. Mienken et al., 267

Fed. 958 (C. C. A., 6th Cir.);

Lemley v. Dobbins, 243 Fed. 391.

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#### THE BYRON JACKSON DEFENSE.

The Byron Jackson defense and the circumstances leading up to the Pabst installation are important in two things:

- (1) As illustrating the problem of arranging for oil lubrication of a shaft in a well and at the same time keeping the oil from getting into the well; and
- (2) its bearing on the question of infringement.

Unquestionably if the Layne patent is to be interpreted as broadly covering any kind of a line shaft with a tube around it to protect the bearings from sand and to afford a means of lubricating the shaft bearings and without any restriction on the escape of the oil from the tube into the water in the well, then the Byron Jackson invention becomes important in determining the matter of priority. On the other hand, giving the interpretation to the Layne patent that every court before which it has come, has given it by making the lower stuffing box an essential of the Layne closure means to provide an "air tight" chamber and prevent contamination of the water by the oil, the Byron Jackson testimony still remains important and pertinent as showing as Judge Morrow pointed out, *non-infringement* by these defendants.

Byron Jackson, it is to be remembered, was at the time of Layne's alleged invention a recognized authority of national reputation and a large manufacturer of pumping machinery. The evidence of his thought and accomplishments along this line of deep well pumping is shown by the depositions of Frank H. Jackson, H. C. Robb and Daniel W. Mead; the latter a distinguished engineer and Professor of Hydraulic Engineering in the University of Wisconsin; also by the correspondence passing between Byron Jackson and his company on the one hand and Mr. Mead and the Pabst Brewing Company on the other.

The purpose for which this testimony was offered originally was to show *priority of invention* and *priority of knowledge* of the encased line shaft problem, although it is true that Byron Jackson never used "stuffing boxes" in his installations or other means to keep in the lubricant, because he says in a letter to Prof. Mead dated June 30th, 1903 (R. 132): .

"I know of no method of retaining the oil in the bearings and all of the waste oil is there to pass into the water pumped."

And as late as September 5th, 1903, he writes:

... "I make no guarantee regarding oil injuring the water or making it in any way unsuitable for the use of the Pabst Brewing Company."

(See Judge Morrow's opinion, R. 1146.)

If the court holds as all the other courts have done that Layne's invention therefore differs from Jackson in the interposition of the lower stuffing box 40-41 of the Layne patent to make an air-tight oil-tight chamber and the use of mechanical oil evacuating means, as the tube 44 and vent 52, wherein and whereby Layne solved the problem of closure where Jackson failed, then the Jackson defense has served its purpose in the manner indicated in Judge Morrow's opinion (R. 1142-1148, inclusive).

Concerning the testimony on the subject, it is to be pointed out that the depositions of Jackson and Robb appear by stipulation of counsel on file, being

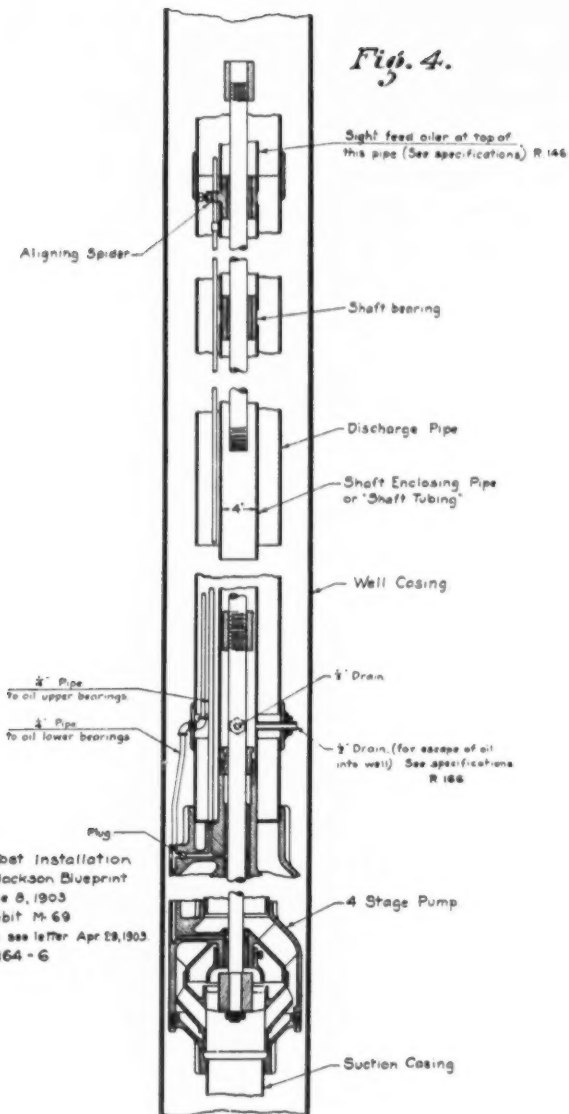
the same depositions made by these gentlemen in the Los Angeles suit. The deposition of Mr. Mead was taken simultaneously with the taking of his deposition in the Los Angeles suit simply as a matter of convenience and entitling the deposition in the respective causes. There is no privity, nor has there been at any time any privity between the present defendants, or any of them, and any of the defendants in the Los Angeles suit, or other litigation respecting this patent. It has merely happened that in the Los Angeles suit, due to conditions of the Court Calendar and the practice in the Southern District, that that case came on for hearing and decision first. As a matter of fact, the present suit was filed before the Los Angeles suit was filed. Under the circumstances your Honors are to view this Byron Jackson knowledge as a defense entirely new in the litigation over the Layne patent.

The correspondence passing between Byron Jackson, Professor Mead and the Pabst Brewing Company, supplemented by numerous working drawings, is represented by defendants' Exhibits "M-1" to "M-91", inclusive. The development of the encased line shaft therein is illustrated by the series of drawings opposite.

For Byron Jackson's description of drawing No. 1 see his letter to Mead, dated March 31st, 1902 (R. 63) Exhibit M-5.

For Byron Jackson's description of drawing No. 2 see same letter, Jackson to Mead (R. 62) where he says:

*Fig. 4.*



Actual Pabst Installation  
Per Byron Jackson Blueprint

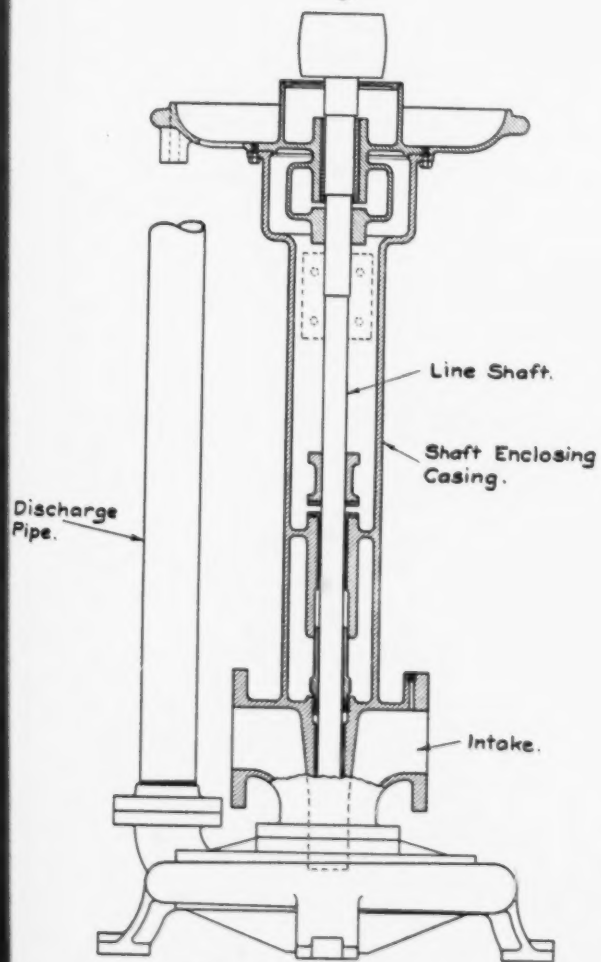
June 8, 1903

Exhibit M-69

For description see letter Apr 29, 1903

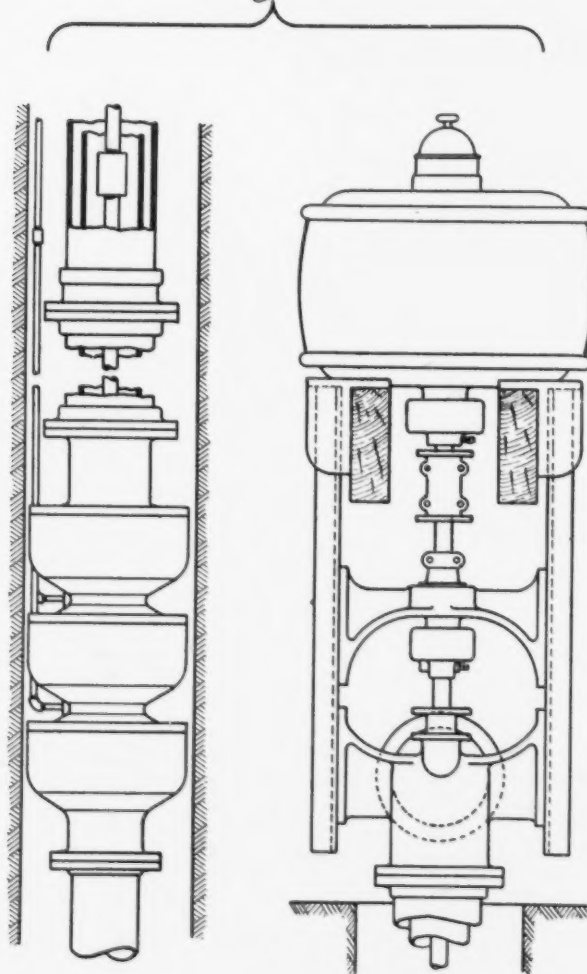
R 164 - 6

*Fig. 1.*



BYRON JACKSON DRAWING.  
R. 1114 AND R. 649.  
MAY 8, 1901.

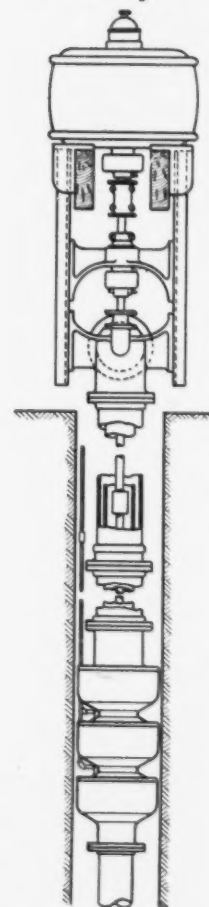
*Fig. 2.*



BYRON JACKSON DRAWING N° 1-C-75  
EXHIBIT M6-R74-1063  
MARCH 5, 1902.

*Fig. 3.*

Assembled view  
of Fig 2







"I herewith inclose an illustration of a small 3 series pump on base, that will give you some idea of it, but of course it will not give you any idea of size."

For Professor Mead's description of drawing No. 2 opposite (drawing No. 3 being an assembly of the two views of No. 2) see R. 72 where he says that the same consists of a

"series centrifugal pumps at the bottom of the well, or down in the well, that discharged into a single discharge pipe, but contained an inner pipe which in turn enclosed the shaft, the discharge being outside of the inner pipe and inside of the outer pipe. Then the bearings were contained inside of the outer pipe; in fact, as I recall it, going clear through and joining the two pipes together and holding the shaft rigidly in place. The shaft that attached to the driving head above entered the center pipe and left it, entered the pump below and separated it from the discharged water. So that in both cases there was no contact between the water discharged by the pump and the shaft."

This drawing, it will be observed, is more than a year prior to Layne's filing date.

As for drawing No. 4 (Ex. M-69) of the Pabst actual installation see Pabst proposed agreement of April 20th, 1903, defendants' Exhibit "M-22" (R. 111) where appears the *first written description* of Mr. Jackson's encased line shaft pump.

"PUMP—To be of the Centrifugal Series type four (4) or more steps, having a capacity of 700 gallons per minute; Revolutions not to exceed 1500 per minute. *The pump shaft to be encased in a pipe within the discharge pipe.*

*Bearings approximately every ten (10) feet and suitable means provided for oiling same which will allow no mixture of the oil and water. Total length from bottom of suction to discharge at top of well, 200 feet. The pump to be suspended in the well by the discharge pipe."* (Italics ours.)

oil This drawing No. 4, though dated June 8th, 1903, is exactly described in Byron Jackson's letter to Mead of April 29th, 1903, Exhibit "M-4" (R. 164-166) where Mr. Jackson wrote describing the shafting as enclosed by a jointed tube that was water and ~~air~~-tight and in which there were drain pipes to let out the oil at the bottom, thereby foreshadowing defendants' structure, saying:

"You will note that the *shafting is inclosed in a 4" pipe and intended to be water and oil tight, and the oil fed in at the top, letting it find its way through each bearing and down the pipe to the pump, where there is arranged suitable drain pipes to permit the water to drain out of the pipe what leaks through the last bearing of the pump where the waste oil will also get out and be pumped through the water, which I presume some people will object to, but as you know, it is a very homeopathic quantity and does no harm.*" (Italics ours.)

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**BYRON JACKSON PUMP ON SALE BEFORE  
LAYNE'S INVENTION.**

Prior to this, as shown by defendant's Exhibit "M-21" (letter of Byron Jackson to Mead, April 15, 1903) a bargain had been struck regarding this pump by an offer to purchase and acceptance of

the terms, so that we might well say that the Byron Jackson pump was "on sale" as early as April 15th, 1903; this being sufficient in itself under the statutes (Sec. 4920) to effect anticipation of Layne.

This correspondence shows due diligence on the part of Byron Jackson.

"And as matter of law we see no difference between the right of a defendant to show the time of conception of an unpatented anticipating device, as also diligence in reducing it to practice, and the right of a plaintiff to do this in respect of a patented device. We conceive this to be the necessary effect of section 4886 and section 4920, paragraphs second and fourth, of the Federal Revised Statutes; and these statutory provisions seem to have been substantially complied with in the second and third paragraphs of the answer when read in connection with the eighth paragraph. It cannot be that a patentee can escape the defenses either that he 'unjustly obtained the patent for that which was in fact invented by another, who was using reasonable diligence in adapting and perfecting the same' (second par. 4920), or that 'he was not the original and first inventor or discoverer of any material and substantial part of the thing patented' (fourth par. *Id.*), whether the anticipating object is patented or unpatented. The statute makes no distinction in this regard; it is the fact of prior invention, not the nature of the right under which the invented device is held, that the statute treats as a defense. As Judge Colt said in *Automatic Weighing Mach. Co. v. Pneumatic Scale Corp.*, *supra*, 166 Fed. at 301, 92 C. C. A. 219 (C. C. A. 1):

"'No sound reason has been advanced why the doctrine of diligence should not apply to a patentee as well as to an inventor who has not

secured a patent. On the other hand, any such distinction in favor of patentees is not in harmony with the patent laws.'

"And, when speaking of Mr. Justice Story's opinion in *Reed v. Cutter*, Judge Colt said (166 Fed. 302, 92 C. C. A. 220):

" 'According to *Reed v. Cutter* (Fed. Cas. No. 11,645), . . . Section 15 of the Act of 1836 (containing in substance pars. 2 and 4, Section 4920) secures to the first inventor the prior right, provided he uses reasonable diligence in adapting and perfecting his invention and the rule applies to all inventors, whether patentees or otherwise.' "

20th Cent. Co. v. Loew Co., 243 F. 373,  
C. C. A., 6th Cir.

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#### THE PABST INSTALLATION A CONTINUING ACT.

"Indeed, the whole doctrine of conception, as differing from reduction to practice, is excellently set forth in *Christie v. Seybold*, 55 Fed. 69, 76, 5 C. C. A. 33, 40, by the present Chief Justice when Circuit Judge, in saying that he who

" 'first conceives, and in a mental sense first invents, a machine, art, or composition of matter, may date his patentable invention back to the time of its conception, if he connects the conception with its reduction to practice by reasonable diligence on his part, so that they are substantially one continuous act.' " (*Curtiss Corp. v. Janin*, 278 Fed. 454-57.)

While the Pabst installation was not completed until some nine months after Layne filed his ap-

plication, it cannot be denied that Byron Jackson was ahead of Layne as to *conception, disclosure and drawings*, assuming, of course, that there is similarity between Layne's alleged invention and that of Byron Jackson.

It took Layne but a few days to convey his yet immature conception to a patent attorney and get an application for patent on file. Although this filing date gave Layne a so-called "constructive reduction to practice", it ought not to avail him as against the practical work of Jackson where the device shown in the Layne patent is impractical and the features giving it novelty have as Layne admits been abandoned.

"The reason hitherto successfully urged, for preferring Janin to Curtiss, is that Janin first 'reduced to practice'—a phrase of which the full meaning is also vital. Reduction to practice is not merely a matter of construction, building and trial, but may consist in the disclosure of the idea by any kind of description, pictorial, verbal, or written, which will enable one skilled in the art to make and use that which is disclosed. We think a drawing may possibly be a sufficient reduction to practice, and an experimental machine insufficient, for the question is one of degree, and the ultimate test is always whether the inventor has shown operative means to that theoretically omnipresent person, the man skilled in the art. *Macomber, p. 68. But see Automatic, etc., Co. v. Pneumatic, etc., Co., 166 Fed. 288; 92 C. C. A. 206, and McCreery, etc., Co. v. Massachusetts etc. Co., 195 Fed. 498, 115 C. C. A. 408.*" (*Curtiss Corp. v. Janin, supra.*)

Had Byron Jackson chosen the same course he could have filed an application on a practical and worth-while design at least an entire year before Layne's filing date. Instead, Byron Jackson proceeded diligently with his work; always maintaining, justified by subsequent experience, that no manufacturer who knew his business could honestly guarantee to keep the oil after it has passed the pump bearings from escaping into the well. Beside Mr. Jackson was dealing with a customer some two thousand miles distant and it took time to make his ideas prevail on that point. (The fact that Layne took out a patent and showed and claimed such a means is no proof of its *practicability* in the light of experience.)

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**BYRON JACKSON DEFENSE LONG KNOWN TO AND FEARED  
BY PLAINTIFF.**

That the Byron Jackson prior invention was for a long time known to and feared by the plaintiff is evident from the very significant letter written by Mr. Bowler to Mr. Layne, dated November 13th, 1911, appearing (R. 870) herein and reading as follows:

"M. E. Layne, Esq., Houston, Texas.

"Friend Layne: Referring to the copy of following letter (letter from Mr. Mead of Nov. 7, 1911, to Layne & Bowler Corporation, Los Angeles, Cal., see R. 869) it occurs to me that I had better let you get hold of this fellow and not correspond further with him. He is an old

man, having such evidence as this, which I am sure the Byron Jackson Company have in their possession, it is hard for me to get the right kind of a deal out of them. If you cannot attend to it at once, let me know and *I will endeavor to get him straightened out and agree that it was in the same year the drawing was made and sent to me, that the sketch was made, etc.*" (Italics ours.)

Layne admits receiving this letter (R. 871).

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**THE LAYNE PATENT AS CONSTRUED BY PRIOR  
ADJUDICATIONS.**

Bearing in mind that the *Byron Jackson defense* has never been before any of the courts in the past being an *entirely new defense* and that the *Alvord* and *Eisler* defenses, aside from appearing never to have been considered, may also be considered as a new defense this court nevertheless will be materially assisted in the construction of the Layne patent by its prior judicial interpretations.

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**THE EL CAMPO CASE.**

The Circuit Court of Appeals which decided the El Campo case construed this El Campo decision as follows (213 Fed. 805, *Van Ness v. Layne*):

"In the El Campo Case, 195 Fed. 83, 115 C. C. A. 115, the court held the patent valid as to claim 13, and that that claim had been infringed. As we understand, the validity of claims 4, 9 and 20 were not passed upon by the



court, but were held not to have been infringed. In the present case we are satisfied that claim 13 is not infringed by the Van Ness pump. The last clause of claim 13 reads, 'the casing being closed at the top and provided with an air vent.' While the Van Ness pump is closed at the top, it is not contended that the pump has an air vent such as the patented pump had and such as the El Campo pump had. One function of this air vent is to force any water or spent lubricant remaining in the casing, out of it, through an aperture in the top, by forcing air through the air vent into the casing, for the purpose of substituting clean liquid or oil. It seems clear that the Van Ness pump had no such member with a corresponding function as the air vent of the patented pump or that of the El Campo pump, and so cannot be said to infringe claim 13. This, if correct, would prevent complainant from relying upon claim 13 in this case, as a ground of recovery."

The foregoing would seem completely to dispose of the contention of the plaintiff in this case that the present defendants infringe claim 13. The court's analysis of claim 13 obviously excludes the Western Well Works pump from that claim.

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#### THE VAN NESS CASE.

The Appellate Court in construing the Layne patent brings out clearly that the features so much stressed by plaintiff in all the litigation, to-wit, the "means for supporting the pump and shaft and casing at any desired point within the well," simply referred to the "system of wedges" (page

806 Van Ness Case). This disposes of any claim plaintiff may make that Western Well Works has any "means for supporting the pump and shaft and casing at any desired point within the well." Manifestly, Western Well Works has no "system of wedges" nor any equivalent therefor.

The court in construing claims 9 and 20 says that the *two claims are substantially one and the same*. Thus at page 807 the court said:

"Giving claim 20 this interpretation (that is construing the words 'line shaft' as referring only to the part of the pump shaft which alone can be enclosed in practice), it seems that it is substantially like claim 9, except in the omission of the element of jointure or extensibility of the shaft sections, which adds nothing to the novelty and patentability of the device; and that the element common to each claim, viz., the protective or closed casing surrounding the pump shaft from the pump to the top of the well and entirely closing off the water in the well from the shaft and its bearings, is the only element in any one of the claims as to which there is persuasive evidence in the record both as to patentability and infringement."

Continuing, the court says:

"The word 'closed' in claim 9 seems to mean as much as the words 'entirely closed' in claim 20."

Continuing, the court says:

"It seems quite clear that the idea of a protected casing for a pump shaft without restrictive interpretation would contain no novelty and would not be patentable, and, if this ele-

ment in the patent is given the unrestricted meaning that its language admits of, it would destroy the claim."

The court then proceeds to limit the claim so as not to destroy it. Against the contentions of the defendant in that case that the claims be given the unrestricted generic meaning suggested by the broad language employed, complainant there argued that the specifications should be looked to to interpret the claim and, to use the language of the court:

. . . "that it should be held to mean only a protective casing of the kind and with the functions set out in the specifications. . . . If so limited, it would seem that the protective casing intended to be covered by the claim was one of the kind described in the specifications and having the three functions attributed to it by the specifications, namely: (1) To exclude water and detritus from the shaft and its bearings; (2) to provide a means of lubricating the bearings of each section of the shaft from the top of the well without removing the apparatus from it; and (3) to align the bearings and the shaft so as to prevent lateral displacement in the well and keep the shaft in a vertical position."

In the next paragraph the court says:

"Giving the claim this significance, it fairly appears from the record, as we see it, that there was no protective casing in the prior art of the kind and with the functions of that of the patent in suit. It also seems fairly to appear from the record that such a protective casing as that set out in the specifications contained novelty enough to constitute invention."

The court, therefore, held the claim valid, but chiefly it appears because in that case there seems to have been conceded that Layne supplied "an unfilled want" for apparatus of this sort. Of course, there is an utter absence of any such showing on the part of plaintiff that Layne's patented pump filled any such long-felt want.

*Such commercial success as the plaintiff corporation may have achieved, has been due, no doubt, to an extensive, and if we may be permitted to use the expression, uncharitable system of advertising and intimidation of competitors.*

(See Restraining Order of Judge Van Fleet granted these defendants, R. 28.)

In the Van Ness case the Honorable Judges, having conceded patentability to Layne, but within very narrow limits, pass on to the question of *infringement*, concerning which the court says (p. 809):

. . . "It seems that the question of infringement, like that of patentability is a *close one*."  
(Italics ours.)

In finding equivalency the court says (p. 809):

"However, the record shows that protection against water and sand is afforded by defendant's casing to all but one of the bearings and to the shaft in the same degree as by that of the patented casing, at least during the period of the pump's operation, and that the protection afforded by defendant's casing is different only in degree from that afforded by the patented casing. The closure in the patented casing is

effected by stuffing boxes as well as by the presence and downward pressure of the oil between the bearings and the shaft, which serves to keep the water from pressing upward into the shaft casing between the bearings and the shaft. The closure in defendant's casing is effected by the last method only, and without the use of packing or stuffing boxes."

The court attributes the other two functions of the Layne patent to the defendant and, finally, in resolving the issue in favor of Layne, *chiefly on the evidence that seemed to be in that case as to commercial use* of the Layne structure, admits its own difficulties and says (p. 809):

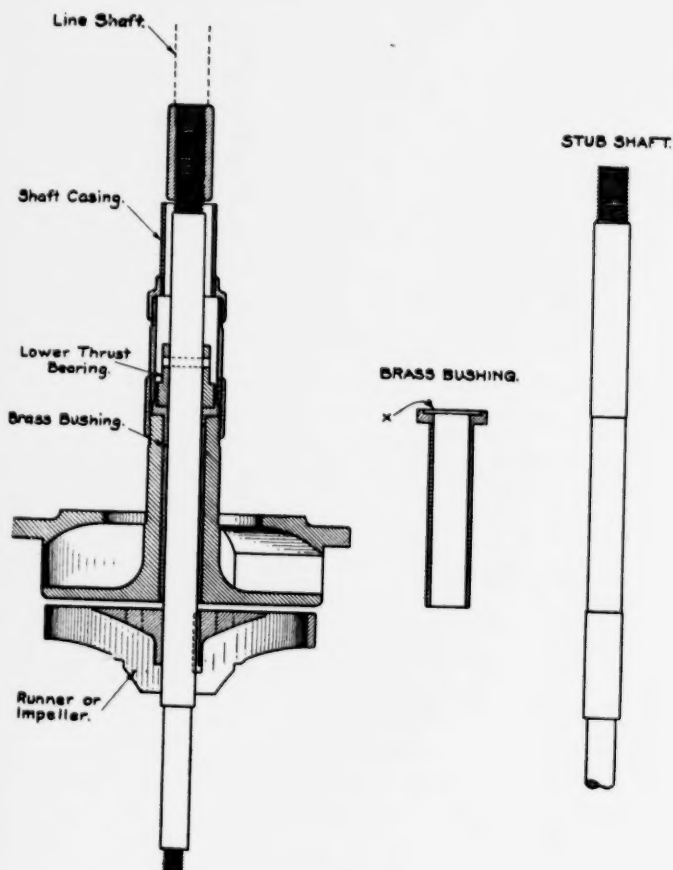
"We must confess that we are not mechanics enough to determine with any assurance from the record the merits of these respective contentions, and *it seems that the question of infringement, like that of patentability, is a close one.*" (Italics ours.)

The court finally saying (p. 810):

"Comparing the conceded practical benefit that has been derived from Layne's patented pump with the theoretical argument of the defendant, we have come to the conclusion that the former should prevail, and that claim 20 of the complainant's patent should be sustained, and that the defendant's apparatus should be held to infringe it in the one respect of a closed casing for the pump shaft of the design and with the triple function attributed to it in the specifications of Layne's patent."

In the present case there is no concession of any "practical benefit" that has been derived from Layne's patented pump. The present testimony

**VAN NESS PUMP**  
 (Held to Infringe in case of  
 Van Ness vs Layne 213 Fed 805.)



Reproduction from Plaintiff's Brief Van Ness Case, with following legend:

**COMPLAINANT'S EXHIBIT DRAWING ACTUAL VAN NESS PUMP (C. E., p. 366).**

Note the groove marked X worn by contact between the power Thrust Bearing and the upper surface of the Brass Bushing, refuting Van Ness' testimony that in operation these parts do not engage (Our brief, p. 47).



shows, aside from the fact that Layne probably borrowed his ideas from Byron Jackson and Alvord, that the patentee has discarded "wedges," "stuffing boxes," "air vent," "oil blow-off means," and his system of lubrication generally, "splined slip-joint shaft," "thrust collars" at the shaft joints, and practically everything that he may be said to have ever *invented* and that no one of these several Layne "inventions" is now or ever has been used in practice *by anybody*.

The opinion in the Van Ness case leaves the character of the Van Ness structure in doubt, but by referring to the Getty case (262 Fed. 141, 144) we find that Van Ness used "*thrust bearings and a collar to help close the bottom of the shaft casing.*" On the opposite page is reproduced a cut of the Van Ness drawing taken from the brief filed on behalf of Layne in the Van Ness case, and which brief we beg leave to file herewith. In connection with this drawing the following argument was made by Layne's attorney there:

"An examination of this exhibit also makes clear the falsity of Van Ness' representations as to the lower thrust bearing. Van Ness testified that in actual operation the thrust bearing was drawn up so that it did not rest on the top of the brass bushing. An examination of the actual Van Ness pump which has been in use one season shows that the lower thrust bearing must have contacted with great force upon the top of the brass bushing, as it has worn its way down into the top of such brass bushing to the distance of 7-32 inches. This will be clearly understood by reference to the drawing of the actual Van Ness structure, which shows that the power thrust bearing has worn a deep path in



the top of the brass bushing. See the recess marked X on the drawing. This corroborates Wilson's testimony as opposed to that of Van Ness, and explains the success of the apparatus in keeping water out of the casing. It will be obvious that it would be impossible to get any more effective seal against water than that secured by the heavy bearing contact between the lower face of the lower thrust bearing and the upper face of the brass bushing, particularly when such surfaces are oiled. The witness Van Ness knew perfectly well that such a contact would make an absolute seal against water, and this explains the reason for his testimony to the effect that in operation the lower thrust bearing was drawn up so that its lower surface did not contact with the top of the brass bushing. As pointed out very clearly by the witness Wadsworth, this thrust bearing constitutes a much more effective seal against water than any stuffing box could, and has its counterpart in the Layne patent, in the thrust bearing 48 which would serve to keep out the water from the shaft casing, even though the stuffing box 41 were dispensed with."

The decision of the Van Ness case, taken in connection with the foregoing extract from Layne's brief and the reproduced drawing, makes it evident that the court was of the opinion that the Van Ness lower thrust bearing and collar *constituted a seal for the lower end of the line shaft casing*, and, in view of the holding in the El Campo case, this seal is an essential element of claims 9 and 20, which element was not found in the Getty construction. Manifestly, *it is not found in the Western Well Works construction.*

We are further aided in connection with this matter by reference to Judge Jack's decision, R. 1007, wherein Judge Jack has said (R. 1001):

"There is this difference between the Van Ness and the Getty apparatus. *In the former the weight of the shaft is largely sustained by a thrust bearing near the bottom of the casing, so that the pressure on the thrust bearing would tend to make the casing nearer waterproof.* In the Getty apparatus, which rests on the bottom of the well, there are no thrust bearings, but all the bearings are of the ordinary kind, so that, as argued by counsel, more water would pass into the shaft casing of the Getty pump than into that of the Van Ness pump." (Italics ours.)

We thus see at the Van Ness stage of the litigation that the court appreciated the *mechanical closure means* of Layne that were essential at the bottom of the shaft tubing, to make anything like a "closed casing." In Layne, as the court says, "the closure in the patented casing is effected by stuffing boxes"; and in Van Ness it was effected by "thrust bearings and a collar to help close the bottom of the shaft casing." The importance of "mechanical closure" is emphasized in the Getty case as we will see.

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#### THE GETTY CASE.

The Getty case first came before the Circuit Court of Appeals (222 Fed. 917) on appeal by the *plaintiff* against the refusal of the lower court to grant a Preliminary Injunction based on the prior

adjudication in the Van Ness case; the court saying (p. 98):

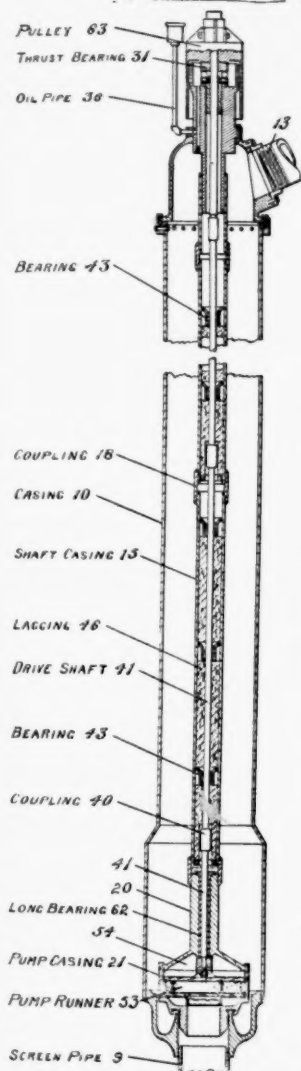
"A hearing was had upon the motion for a preliminary injunction, based upon *ex parte* affidavits, and the injunction was refused. To review this order the appellants have brought the case to this court.

"Claim 20, sustained as valid by this court in *Van Ness v. Layne*, 213 Fed. 804, 130 C. C. A. 462, is the only claim of the patent involved in the present controversy. As before stated, the hearing before the District Judge was had upon mere *ex parte* affidavits. Appellee denied that his improvement infringed claim 20 of appellants' patent, and it is apparent from an examination of the contradictory affidavits that the question of infringement *vel non* is left in considerable doubt."

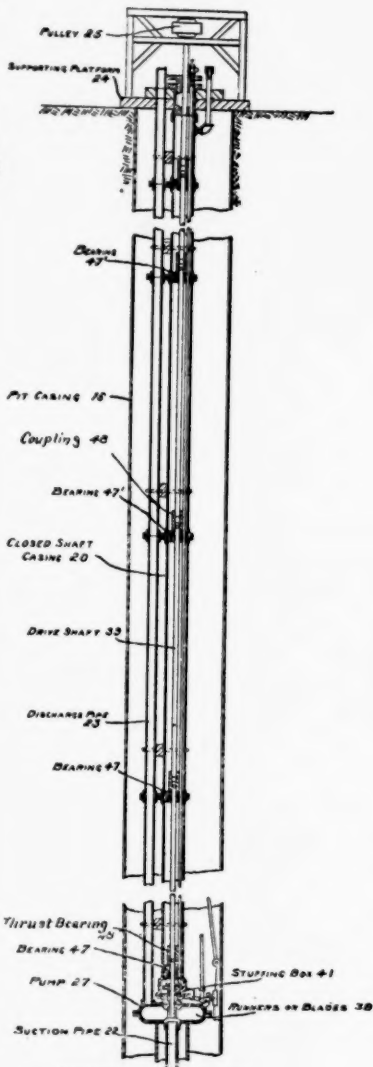
The court held that there had not been an abuse of discretion and denied plaintiff's motion. This in itself does not speak a high regard for the Layne patent in the mind of the Court of Appeals.

In 262 Fed. 141, the case, after final hearing, comes again before the court for review following Judge Jack's decision sustaining the patent and adjudging infringement *against his own better judgment*; the attitude of Judge Jack being indicated by the following excerpt from his opinion in referring to the argument that there was no invention over Crannell in interposing intermediate bearings and oiling by simply letting the oil run down from bearing to bearing as would occur to anyone and had always been the method of oiling vertical shafts:

# GETTY



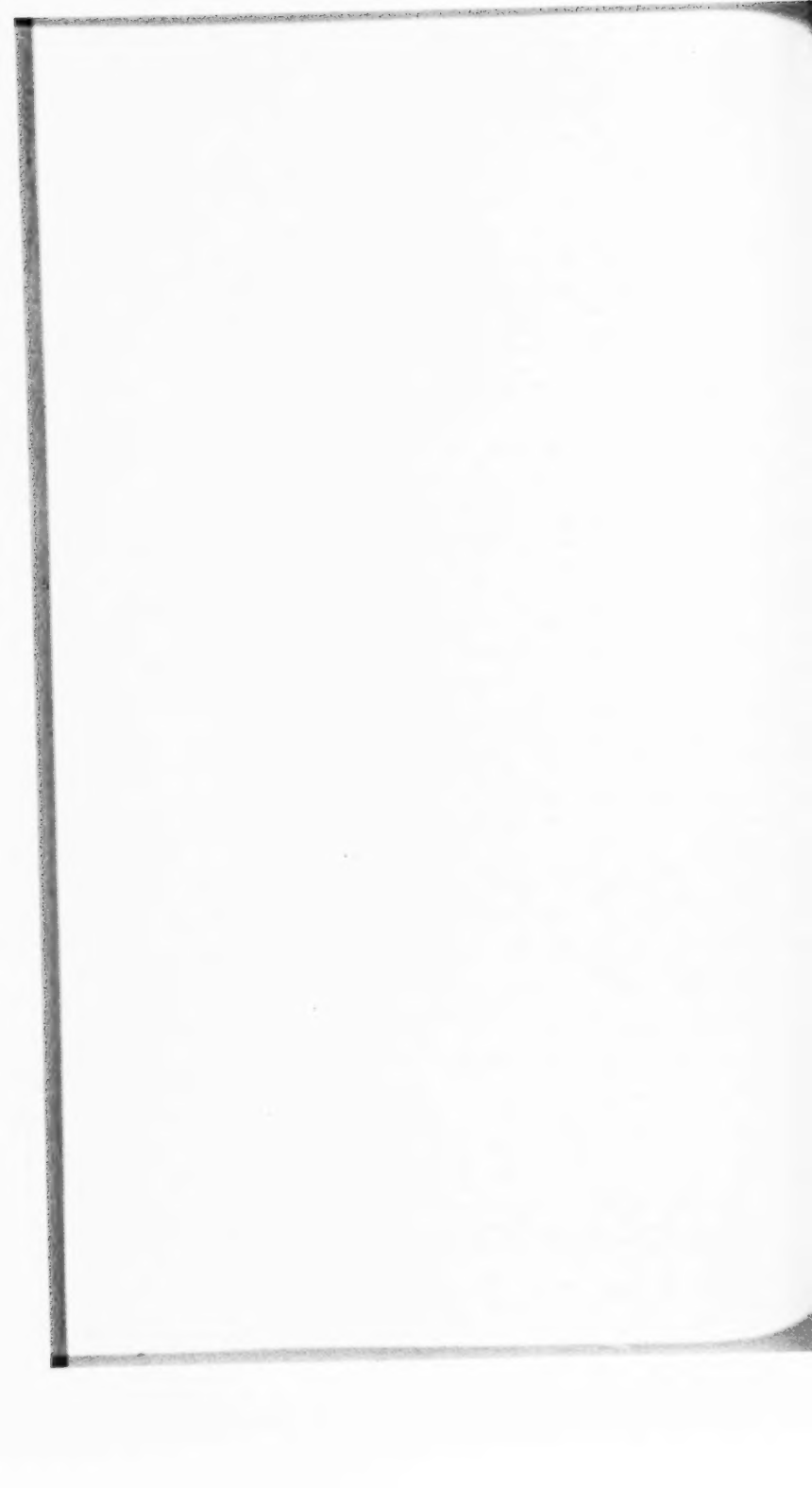
DEFENDANT'S APPARATUS.



COMPLAINANT'S APPARATUS.

## Comparison of Complainant's and Defendant's Apparatus.

Note. Both devices have "a closed shaft casing" (see casings, 20 and 13), and both devices have bearings (47' and 43). Supported, protected and lubricated in closed shaft casings. The casing enclosing the bearings is admittedly a new thing in the art (Brief p. 6).



“The court is much impressed with this argument. The insertion of additional bearings to prevent whipping of the shaft where the distance between bearings is too great, is as simple and natural a thing to do as the putting in a fence of extra posts to prevent sagging of a barbed wire, where the posts of the panels are too far apart. Were the question a new one, *I should be inclined to hold the patent invalid*, but the same issue was raised and directly passed on by this Court and by the Court of Appeals for the circuit, in the Van Ness case sustaining the patent.” (Italics ours.)

On the further question of infringement, Judge Jack, feeling bound by the ruling of the upper court in the Van Ness case, says in conclusion:

“As stated by the court in the Van Ness case, the questions both as to patentability and infringement are close ones. The evidence on the first question is practically the same in the case at bar as in the Van Ness case, and on the second question I think there is no substantial difference in the features of the Van Ness and Getty pumping apparatus as to which infringement is claimed.

“Following the ruling in the Van Ness case, specifications numbers 9 and 20 must be held to be valid and to be infringed by defendant’s pump.”

The Court of Appeals, however, took a different view of the question of infringement and reversed Judge Jack, holding that Getty did not infringe. On the opposite page there is reproduced a drawing of the Getty structure taken from the plaintiff’s aforesaid brief in the Getty case. The comparison they attempted there to show infringement was, of course, futile.

**STUFFING BOXES IN LAYNE BOTH TOP AND BOTTOM TO  
EFFECT CLOSURE.**

The court in its opinion, *supra*, handed down since the filing of the Bill of Complaint in this case, sustains the Layne patent on admittedly a "shoestring" basis. At page 142 of the Getty case the court says, in pointing out the alleged advance of Layne over Crannell:

"Layne solved his problem by the use of a jointed shaft with intermediate bearings, lubricated from the top to the bottom by gravity, and protected from the water and sand of the well by being inclosed in a casing, which excluded both sand and water from the bearings and shaft. He accomplished its adjustment to vertical positions in the well hole by suspending the shaft, pump and casing from the top of the well, and by a system of wedges holding the well mechanism in position when adjusted. The suspending of the well mechanism from the top also enabled Layne to keep the shaft in alignment through the added stiffness given by the downward thrust of the weight of the pump and shaft. This downward thrust also helped to effect the closure at the lower bearing against the entrance of sand and water. However, the specifications of Layne's patent show that *he relied upon stuffing boxes at the top and bottom of the shaft to effect the closure, and to prevent entrance of water and sand*, to the detriment of the shaft and bearings." (Italics ours.)

Then in construing claim 20 (which had previously been held to be identical with claim 9) the court says:

"The twentieth claim of the patent—that sustained in the case of *Van Ness v. Layne*, *supra*—covered 'the combination of a well cas-

ing, a rotary pump therein, and a line shaft for the pump *entirely closed off from the water in the well.* Validity was given this claim by defining a closed shaft to be one having the three functions of (1) aiding the alignment of the shaft in the well casing; (2) providing for lubrication of the shaft and bearings; and (3) protecting the shaft and bearings from water and sand. The question of adjustment did not enter into the discussion in that case. The closed shaft of the claim was restricted, as above stated, by referring it to the character of inclosed shaft described in the specifications of the patent. *It was only by giving the claim this restricted meaning, and limiting it to the description in the specifications, that the claim could be sustained.*" (The last sentence italicised is our; the first italics are the court's.)

Continuing, the court says (p. 143):

"The Layne patent too nearly resembles the Crannell patent to be called a pioneer. . . . Its merit was in adapting the Crannell type of pump to a narrow and deep well hole, in a way that has been held by us to exhibit novelty. While the substitution of mere mechanical equivalents for the means adopted by Layne could not avoid infringement of his patent, it is also true that the range of equivalents cannot be enlarged upon the idea that his patent was a pioneer one in the pump art. *Its advance over Crannell prevented Crannell from being considered by us an anticipation, and was enough to show novelty, but it stops there.*" (Italics ours.)

The court then applies the rule of law that a *functional result is not patentable but only the means of its accomplishment*, saying (p. 143):

"The Layne patent must rest, not upon the idea of closure, which would not be patentable



apart from the method by which it was accomplished, but upon the *means of its accomplishment*, as disclosed by the specifications of his patent. The means which he adopted to accomplish adjustment we are not here concerned with, because the Getty pump has no means of adjustment up and down in the well." (Italics ours.)

It is self-evident that the Western Well Works "has no means of adjustment up and down in the well."

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**"STAGNANT" VS. "CIRCULATORY" SYSTEMS OF  
LUBRICATION.**

The court in the Getty case next passes to the crux of the case and finds that Layne's system of lubrication is a "stagnant" one, while Getty adopted a "circulatory" system of lubrication. "These functional differences between the stagnant and circulatory systems of lubrication prevent their being considered as merely mechanical equivalents."

The court says (p. 154):

"Layne's method of lubrication was to put the oil in at the top and to permit it to descend to each of the bearings, and remain *stagnant* within the shaft casing until ejected from the top after it had become spent, by air pressure through an air vent. When it was ejected, it was replaced by clean oil from the top again. On the other hand, the oil was confined at the bottom of the well by use of a packing or stuffing box. Getty adopted a *circulatory* system of lubrication. By it the oil was also introduced from the top, and descended to the lower bear-

ings by gravity. However, at the bottom there was only a partial obstruction to its exit, presented by a long sleeve bearing. Its passage out from the shaft casing was automatic and continuous, so that there was a constant and free flow of lubricant from the top of the line shaft, throughout its length, and out through its bottom. This method was claimed to be necessary to Getty's device, because wear on the upper bearing required a continuous supply of fresh oil for its proper lubrication. *These functional differences between the stagnant and circulatory systems of lubrication prevent their being considered as merely mechanical equivalents.*" (Italics ours.)

In further explanation of this the court points out (p. 143):

"Layne, according to the specifications of his patent, effected his closure at the top and bottom of his shaft by the presence of stuffing boxes, assisted by the effect of a downward thrust bearing and collar. In practice, Layne soon abandoned the use of packing boxes, substituting therefor a long sleeve bearing and retaining the collar. The downward thrust of the weight of the shaft and pump, together with the downward pressure of the column of oil in the shaft casing, accomplished his closure. While the pressure of the column of oil against the outward column of water is now urged by Layne as important in his means of closure, it is true that it is not stressed, as such, in the disclosure of his patent. Principal reliance is there placed on the use of stuffing boxes."

Concerning Getty's mechanism the court says (p. 144):

"Getty's mechanism is free from any such closure device, either against the flow of oil out-

ward or the flow of water inward, except the long sleeve bearing, without either a collar or the advantage of the downward pressure from the suspended apparatus. Getty relies for closure upon the downward pressure of the oil column balancing the upward pressure of the water column. His mechanism prevents him from availing of packing boxes to effect closure, because they would equally prevent the exist of the oil, which is a necessary feature of his circulatory system. The same reason would prevent his using a thrust bearing with a collar."

Finally, the court held that the constructions were not only *functionally* different but that the "*physical obstructions* such as packing boxes and thrust bearings" in Layne did not find their mechanical equivalent in Getty's partial closure "effected by balancing the pressure of the column of water outside the shaft casing against the pressure of the oil inside the casing, *without the use of physical obstruction*" and therefore held there was no infringement.

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#### THE LOS ANGELES SUIT.

Special Master Helm, in finding that the changed structure adopted by the defendant, the American Well & Prospecting Company, subsequent to the Appellate Court's decision in the Getty case, was not an infringement, says in that case (R. 1096) and following:

"There cannot be said to be any difference in the method of alignment used by the defendants in their structure and the method used by

Layne. The mechanism in both cases is suspended from the top of the well but in the defendants' pump by reason of a slight support of the enclosing tubing on the pump neck there is little tension imposed upon the enclosing tubing.

"The alignment is kept by the use of spiders in the defendants' pump and it is also adopted at intervals in the Layne pump. The use of spiders was a well known mechanism and it cannot be held that the defendants have necessarily adopted that part of the Layne device for the purpose of creating an alignment and there is no new discovery on their part by the adoption thereof.

"With reference to the method of lubrication, however, there was a considerable difference subsequent to January 23rd, 1920, between the methods employed by the defendants and by Layne. Layne's method of lubrication was to put the oil in at the top and permit it to descend to each of the shaft bearings and remain stagnant in the shaft casing until ejected from the top, after it had become spent, by air pressure through an air vent. When it was ejected it was replaced by clean oil from the top again. The oil was confined at the bottom of the tubing by use of a packing or stuffing box.

"The defendants, however, after January 23rd, 1920, adopted a circulatory system of lubrication. The oil was introduced from the top, passed through a short tube connected to the casing and descended along the casing to the shaft bearings by gravity. Before reaching the extreme lower end of the protecting casing it passed through between a long eight-inch sleeve bearing (which surrounds the upper end of the stub and which extends down into the pump neck), and the outside of the stub shaft. This long sleeve bearing was bored 1-64 of an inch larger than the shaft and from the lower end

of the long sleeve bearing the oil passed into a duct in the shaft where there was a passage-way and thence out through the bottom of the stub shaft where the unconsumed oil mingled with the waters of the well. This method was different from anything that had ever before been constructed and provided a means of lubrication from the top to the bottom, prevented stagnation in the oil and made it absolutely circulatory at all times that the mechanism was in operation.

“The defendants’ mechanism is free from any closure device either against the flow of oil outward or the flow of water inward, except the long sleeve bearing. Necessarily the downward pressure of the column balances the upward pressure of the water column. There are no packing boxes in the defendants’ structure as in the Layne invention to effect closure and it is absolutely necessary that there should be nothing to prevent the exit of oil which is a necessary feature of the circulatory system. There is no downward thrust in the defendants’ structure due to the weight of the apparatus as the means of closure. One-half pint of oil is plenty for a ten hours’ run.

“It would appear, therefore, that defendants accomplished lubrication and closure by means so fundamentally different from Layne’s closure in his patent that they cannot be said to be mere mechanical equivalents. The fact that the defendants’ structure either in lubrication or closure are not as complete in effect as that of Layne is an unimportant factor but the structures differ so radically that it cannot be said to be a mere difference in degree.

“Layne’s closure is effected by physical obstructions such as packing boxes and thrust bearings and by pressure of the oil column while the defendants’ closure is effected by the col-

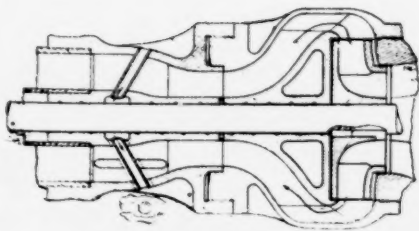
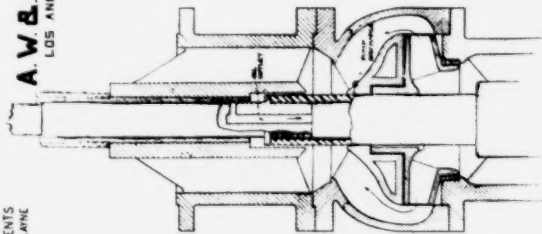
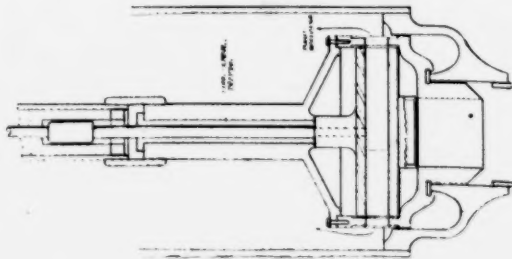
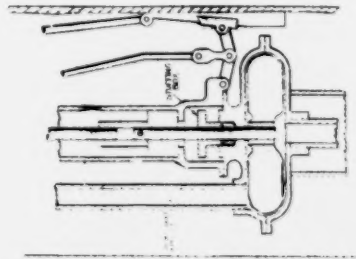
LAYNE PAT.

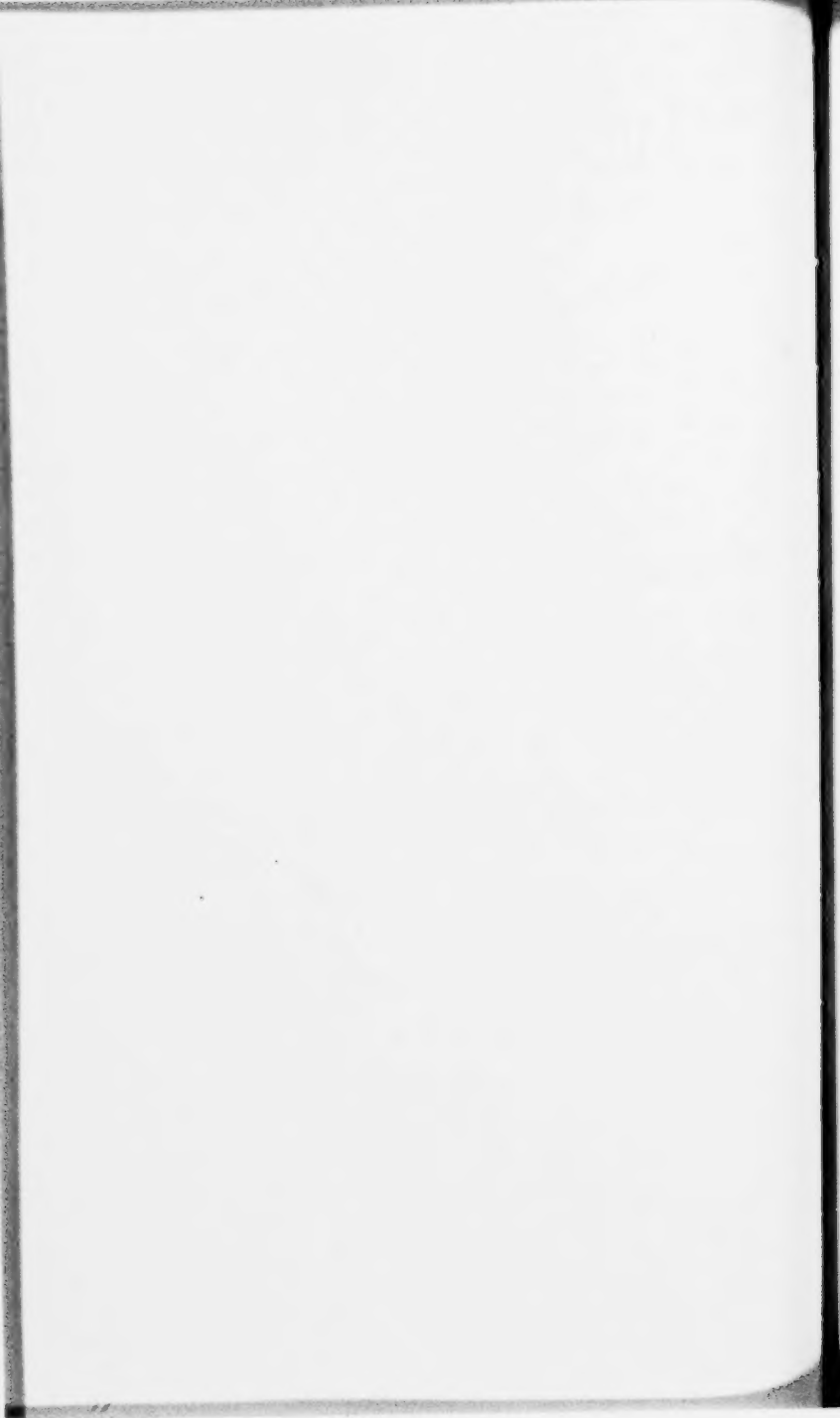
GETTY

NON INFRINGEMENTS  
COMPARED WITH LAYNE

A. W. & P. CO.  
LOS ANGELES

WESTERN WELL





umn of water outside the shaft casing against the pressure of the oil inside the casing without the use of physical obstruction. The difference is one of novelty on the part of the defendants and not adopted merely to avoid infringement.

“The defendants’ structure is suspended from the top of the well but it does not use thrust bearings to help close the bottom of the shaft casing. The differences between the plaintiff’s structure and the defendants’ structure are with reference to the lubrication and closure and are so important that they should not be held to be mechanical equivalents and not to infringe the enclosed line shaft lubrication enclosure of the Layne patent.”

On the opposite page appears a cut contrasting the non-infringing structures, that of the present defendants as well as those of Getty and Los Angeles, with the patented Layne structure.

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#### THE DEFENDANTS’ STRUCTURE.

The defendants’ structure is illustrated by the model, Defendants’ Exhibit “V.” This is a true and correct working model built according to standard shop practice of the defendants.

Mr. Conant says (R. 668), concerning this model:

“This pump model was built on our standard forming tools. The hubs were machined with standard tools, so they would have exactly the same dimensions as those put out in practice. The tubes were reamed with our shop reamers, those which are used in standard practice. If there is any difference in fit between any of them now it would be due to putting them on



and taking them off, which would make them slightly looser by that means; there has been no other change."

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**DEFENDANTS' PATENT TO HALSTEAD.**

Defendants operate under their own patent No. 1,228,770, dated June 5th, 1917, in evidence as Defendants' Exhibit "W" (R. 1109). For testimony, see Lesley (R. 738).

Prof. Lesley has already characterized the lubricating feature of Layne as "a stagnant system of lubrication" (R. 731) "the lubricant introduced by some means into the tube is held there until it becomes spent. There appears no way by which it can be continuously fed. It is simply held as lubricant might be in the crank case of an automobile; it is filled up and it wears out or is burned out, dissipated."

Mr. Doble confirms Prof. Lesley and the Halstead patent when, on direct examination, he quotes from the Halstead patent (page 2, commencing with line 53, R. 840-1):

"It is of course well known that clear water is an excellent lubricant but the tendency of the shaft to corrode renders its use objectionable when used alone. The use of oil alone is highly objectionable as it contaminates the water to such a degree as to become a nuisance when fed from the top or bottom, and requires a more or less complicated system of pipes when fed directly to each bearing, besides adding considerable to the expense of operating. I obviate

S. M. HALSTEAD.

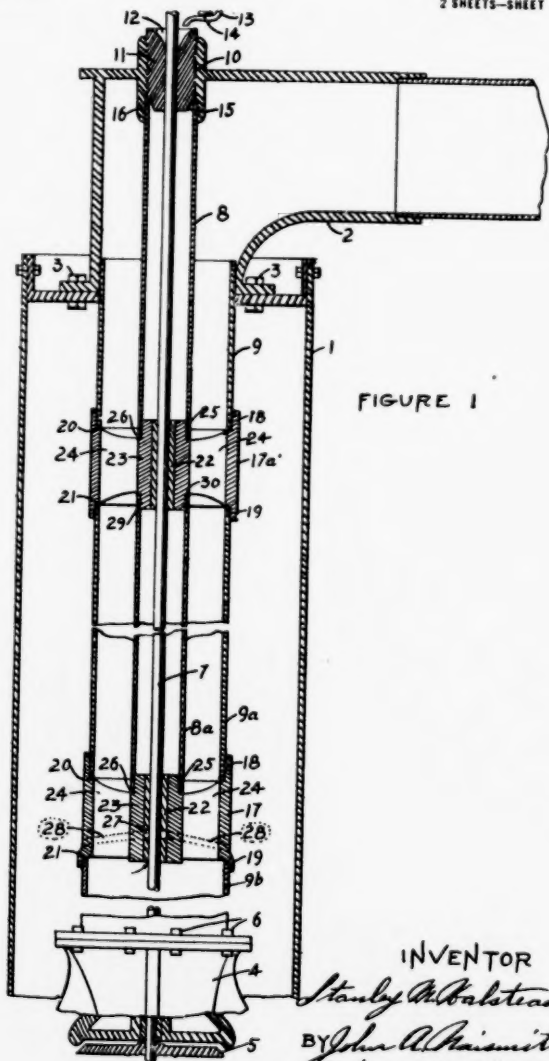
PUMP MECHANISM.

APPLICATION FILED DEC. 20, 1915.

1,228,770.

Patented June 5, 1917.

2 SHEETS—SHEET 1.





these objectionable features by using an oil emulsion as a lubricant as above described, thereby providing a cheap lubricating medium, preventing corrosion of the shaft, not contaminating the water delivered and, on account of the constant flow of water through the bearings, providing an efficient cooling system for said bearings.

"It will be readily seen, of course, that since the conduits are connected to the well proper by channel 27 and auxiliary conduits 28, the water in said conduits will be drained to the level of the water in the well when the pump is in operation, and consequently there will always be a movement of the water into said conduits, down the shaft, through the bearings and out through auxiliary conduits 28. The draining of conduits 8, 8a, etc., in this manner also conduces to economy by obviating the necessity of providing a stuffing-box at the top bearing."

And continuing Doble's cross-examination (R. 841-2):

"XQ. You found present in this Plaintiff's Exhibit 4 the function of the drain tubes with respect to the matter that you first read beginning on page 2 of the Halstead patent, lines 63 to 65?

"A. Yes.

"Q. You found that function present?

"A. Yes, I found that the elements as set forth in that part of the patent are in this Plaintiff's Exhibit 4."

This version of the operation of defendants' structure was adopted by the Circuit Court of Appeals and to some extent by the District Court, although the latter injected some qualifications therein not in any way supported by the evidence.

The Court of Appeals on this phase of the case said (R. 1142):

“Does the lubricating oil introduced into the defendants’ shaft casing pass down through the bearings, and after being used and spent, finally pass out at the bottom of the shaft into the well proper through a channel or auxiliary conduit constructed for that purpose? If it does, then it is not the same mechanical device for lubrication claimed and specified in the plaintiff’s patent. The plaintiff’s device does not have any outlet for the used and spent oil to pass out into the well, and as we understand the mechanical construction of plaintiff’s pump, it was devised, in part at least, for the specific purpose of avoiding that objection.” (R. Vol. 3, p. 1142.) . . .

“The defendants’ pump is substantially the Jackson mechanism with respect to the discharge of used or spent oil from the bottom shaft into the water of the well, and is therefore not an infringement of plaintiff’s patent for an entirely closed casing for the line shaft.” (R. Vol. 3, p. 1148.)

Inferentially, at least, inasmuch as Mr. Doble found the functions and elements of the drain tubes set forth in that part of the patent which he had first read to be present in Plaintiff’s Exhibit “4,” the additional functions of drainage and circulation of the lubricating medium (referring to lines 70 to 103, *supra*) were also present.

“‘It will be observed that channel 27 is placed a short distance above the lower end of bearing 17. This is done so that the lubricating emulsion will traverse the greater portion of the bearing before draining away. That portion of the bearing below channel 27 will not be lubricated, because the upward pressure of the

water being raised will tend to force a small amount of water in the direction of the arrow upward through the bearing, until the channel, 27, is reached, where it will be drained away through auxiliary conduits, 28.' "

And continuing, Mr. Doble says (R. 830) that the Anderson pump, Plaintiff's Exhibit "4," has substantially the same mode of operation, saying:

"Referring to Plaintiff's Exhibit 4 I find the channel, 27, which is shown in the patent drawing, being placed between the ends of the lower bearing, or the bearing immediately above the pump bowl, and from that chamber I find the two conduits, 28, and on examining the shaft of this pump and its bearings, it shows clearly that where the shaft went through the upper bearing it was protected from grease, and the lower part from this point down shows the corrosive action of the water being forced through the bearing. Now, in pumping under high pressure, the water is forced up through this bearing into chamber 23, and is then short-circuited back into the well, where there is low pressure through the channel 28,' . . .

And, on cross-examination, Mr. Doble reads into the record the additional functions of the drain tubes specified by the Halstead patent (beginning with line 70 down to line 103, inclusive, of page 2):

" 'It is of course well known that clear water is an excellent lubricant but the tendency of the shaft to corrode renders its use objectionable when used alone. The use of oil alone is highly objectionable as it contaminates the water to such a degree as to become a nuisance when fed from the top or bottom, and requires a more or less complicated system of pipes when fed directly to each bearing, besides adding consid-

erable to the expense of operating. I obviate these objectionable features by using an oil emulsion as a lubricant as above described, thereby providing a cheap lubricating medium, preventing corrosion of the shaft, not contaminating the water delivered and, on account of the constant flow of water through the bearings, providing an efficient cooling system for said bearings.' "

As said in *California Canneries v. Dunkley*, 247 Fed. 790, 794:

"They cannot offer this testimony as true to prove a material and relevant fact for one purpose, and discredit it for another purpose. If it is true for one purpose, it is true for any purpose."

The defendants' pump is described by the witness Conant, Engineer for the Western Well Works, Inc., beginning (R. 664).

The defendants' structure, as shown both by the model Exhibit "V" and the Halstead patent, may generally be said to embrace a pump which has a shaft to operate the impeller, which shaft turns in bearings which are carried by the *discharge column* of the pump. Between the discharge column and the impeller shaft, which latter is *concentric* with the discharge column, and between the successive bearings, there are interposed sections of pipe surrounding the line shaft and which enclosing pipe or tubing, with the discharge column, forms a conduit for the water discharge. This shaft tubing of the defendants is like Layne in only one particular, and in that particular it is exactly like

numerous structures and patents in the prior art: that is, it affords a protection against sand and gravel carried by the water against cutting out the bearings. The similarity between Layne and the defendants ends there.

The problem in that regard was not new with Layne; for prior patentees like Crannell, Eisler, Ivens, Alvord and others used a tubing around the shaft to protect the bearings from wear. The only difference between them and Layne was in the *degree of the enclosure* effected by their tubing around the shaft. Except Eisler they afforded a protection merely against the abrasion of sand and gravel *but did not exclude water* from the interior of the tubing. Neither do defendants exclude water, while Layne does. Eisler had the Layne problem of exclusion of water although he does not show a stuffing box. The added function of *stuffing boxes* provided by Layne was the *exclusion of the water*, so that a clear undiluted body of oil could be retained in the Layne shaft enclosing tubing, and his shaft bearings would run in a flood of oil. Again we see the pertinency of Professor Lesley's automobile crank-case comparison.

In Halstead the *rigid connection* of all the *shaft sections* together and carrying its entire weight and the weight of the pump impeller on the surface is in marked contrast to the loose telescoping structure of the plaintiff's patent where the pump shaft is in sections each with its collar 47 or 48, *each section carrying its own load*; the slip joint connections



of Layne being in no ways the equivalent of the rigid connected shaft of defendants.

Again, it is to be noted that the *loose disconnected shaft tubings* of defendants are dependent entirely for their support on the *bearings* which are carried by the discharge column, and that the *shaft tubing may be entirely dispensed with and the pump would still function* although it would leave the bearings exposed to the discharging water. This, again, is in marked contrast to the Layne patented structure where the shaft-enclosing tubing is connected as a rigid structure and *the whole pump and its assembly is dependent for support on the Layne shaft tubing*. Remove Layne's shaft tubing and the pump falls apart.

Again, defendants, effect their lubrication on an entirely different principle from Layne, and, in fact, from the prior art for that matter. Halstead as seen above discovered that by using a *loosely jointed tubing* around his line shaft, with each section *shorter than the distance between each bearing* so that a limited amount of vertical play of each section was permissible, and with the *lower end of the shaft tubing in direct communication with the water in the well* through ducts or channels which communicated with the interior of the tubing and the outside of the well eliminating stuffing boxes, and employing a *gravity* feed of his lubricant, that this oil would travel downward from bearing to bearing and eventually find its outlet into the well through the drain tubes. Inasmuch as these pumps

are usually submerged so that the water would back up through the drain tubes and enter the tubing a lubricant could be used known as an *emulsifying oil* which is readily miscible with water; this emulsion forming a good lubricant in itself.

Furthermore, it was found that by making the sections surrounding the tube with loose slip joints adapted to seat merely by friction on hubs, formed above and below the bearings (the tube sections being as above stated each shorter than the distance between the bearings so that a limited lengthwise play of each section between the bearings is permissible, and more or less water would leak in at each of these joints formed between the telescoping ends of the tube sections with the bearing hubs), that this entering water mixing with the emulsifying oil, would further aid lubrication and reduce the quantity of lubricant necessary.

The testimony shows further that where operating under high heads or considerable water pressure, due to the lift, a difficulty was met with by reason of the water entering the tube and flowing *upward* in the tube and out at the top, rather than *downward* and out at the drain tubes. So in order to maintain *circulation downward* rather than upward and to permit the proper infeed of lubricant which is necessary for most effective lubrication, the defendants, early in their operations, provided the shaft bearings with *helical grooves delivering downward*, so that the shaft, which, in operation, is rotated at the high speed of some 1100 to 1200

revolutions per minute produces, as experience shows the phenomenal condition of a *force feed* acting after the manner of a multi-stage pump to create a downward pressure and a forced delivery down of oil and water or any other liquid or viscid substance in the tubing; these accumulating pressures serving to carry downward the emulsion as well as the original heavy greases employed around the bearing when the pumps are first installed and finally ejecting the same from the drain tubes into the well.

The action which will be more fully explained later, of these helically grooved bearings with the open drain tubes is evidenced by a bottle of a brownish liquid identified as Exhibit "Y-10" and representing a mixture of emulsifying oil and an *analine dye* fed in at the top of one of defendants' pumps and after mixture with the water in the tubing being caught by Professor Lesley when discharged at the drain tubes. This exhibit was gathered by Professor Lesley in one of many tests that he made to determine within the range of physical possibilities just exactly what the action was particularly as concerns lubrication in the defendants' pump. These tests, as well as the common sense of the thing, show conclusively that the defendants' pump works on a *circulatory* system of lubrication and is as foreign to the stagnant, crank-case system of defendants as is a stream of pure running water to a cesspool.

*Layne has been judicially determined to be limited to a "stagnant" system of lubrication and,*

*therefore, should not be held to embrace defendants' system which is admitted to be "circulatory."*

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#### THE ANDERSON PUMP.

There is also in evidence as Plaintiff's Exhibit "4" a mutilated section of the so-called Anderson pump, an original installation of the defendants. The history of this mutilated section since it was installed in the well by the defendants is so surrounded with mystery and so much suspicion attached to the so-called "tests" which it was subjected to in the year and a quarter it was in plaintiff's possession, following its removal from the well, that its present condition can in no wise be taken as an indication of operating conditions which these pumps are designed to meet and fulfill. Whether the pump was tampered with or not of course is not known but that it is not in the condition it was in in the well seems to be certain.

However, even in its present condition and with the white lead around the joints of the tubing *hardened and dried by exposure to the atmosphere*, it clearly shows the "drain tubes" through which "circulation" takes place.

Indeed, the "circulation" of the lubricant in the Western Well Works construction is so evident, and the system so manifestly a "circulatory one" that the plaintiff admits the very method of lubrication contended for by defendants.

**PLAINTIFF ADMITS DEFENDANTS EMPLOY A CIRCULATORY  
SYSTEM OF LUBRICATION.**

Mr. Layne in describing the lubrication of defendants' pump, as evidenced by the Anderson pump, says (R. 573):

"In the first place, the tube that surrounds the shafting that enters the bearing is continuous from the pump neck to the top of the well, which makes connection with pump head. A 3-inch pipe connects up through the discharge T into the pump head proper, so that the water, as it is being pumped from the well by the pump discharges up through the casing member here, and outside of the shaft casing. *The lubricant, as it is applied, works its way down through the shaft casing, and—*

"Mr. TOWNSEND.—Now, your Honor, he never has seen one of these pumps in operation, and so he can't tell how it is lubricated.

"The COURT.—Well, he agrees with your statement, anyhow. . . .

"The COURT.—He is stating precisely what you stated in your opening. Proceed with the answer.

"A. *The lubricant is then admitted into the well through the drain port or vent in the pump neck—*" (Italics ours.)

In order to emphasize how the oil traverses the several bearings in the Western Well Works structure gravitating downward until it finally escapes from the tube into the well Mr. Layne further says (R. 575):

"Therefore, we claim that every part of the Halstead structure, or the Western Well Works structure, every pipe, the enclosing casing, performs the same function as our enclosing casing, the bearings perform the same function, the

lubricating performs the same function; the shaft-protecting casing shuts out the sand as it is being pumped through here, so that the lubricant can gravitate or *work its way down* through the shaft casing, and as it *works down* it both lubricates and protects in every way every bearing throughout the entire line of shafting. *One drop of oil admitted at the surface, or a dozen drops of oil, lubricate each bearing as it passes from one to the other,*" . . .

And (R. 582):

"the only difference being that they provide a duct by which the lubricant, when it reaches the top of the pump, can *pass into the well* in place of the lubricant as it works through our shaft-enclosing casing passing in the pump portion and is carried out directly with the water being pumped." . . .

And again this (R. 583):

"Mr. LYON.—Q. From your examination of this Anderson pump, Plaintiff's Exhibit 4, was that a *free circulation* down at the bottom out from the shaft-enclosing casing?

"A. It is free after it comes in contact with the ports, but preceding the [568] entry of the oil at the port opening the oil is retarded at each shaft-bearing." (Italics ours.)

And finally we have this in Plaintiff's so-called Opening Brief (page 103):

"*Lubricant, with the exception of the hard grease packed in the shaft casing by defendants at the time of installing the structure, is fed into the top of the shaft-enclosing casing at 12 and passes or circulates down the casing through each intermediate bearing and through the lowest bearing into the chamber 27 from*

*which it overflows and passes through the conduits 28 into the well."* (Italics ours.)

The figures have reference to the Halstead Patent drawings; the chamber 27 and conduits 28 also being shown in the cross sectional cut of the Anderson pump which appears opposite said page 103 of Plaintiff's Opening Brief.

So inconsistent are plaintiff's counsel that after conceding defendants' lubricating system to be circulatory, page 103, say at page 135 of their Opening Brief:

"With said heavy grease in the casing, on the shaft and in the spiral grooves of the bearings and *thus being found after years of use*, it is obvious that even the lighter, emulsifying oil could not flow freely through defendants' shaft-enclosing casing." (Italics theirs.)

Of course, the word "freely" may be said to save the day and not to constitute a retraction of the previous admission.

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**THE FOREGOING ADMISSIONS OF FACT BINDING  
ON PLAINTIFF.**

Even in the face of the above admissions and weight of evidence and the teachings of the Layne Patent the trial judge committed the fundamental error of comparing the defendants' structure not with the Layne patent but with what appears to be the mode of operation of Layne in his commercial structure, and finds in effect that *both*

systems are circulatory or that both systems *may be* stagnant; the trial court saying (R. 894):

"It is also earnestly insisted by defendants that the two systems are differentiated by the fact that their lubricating system is circulatory, while that of the plaintiff is static. In one or two of the decisions cited *supra* more importance is attached to this consideration than under the evidence here I have been able to accord to it. Under the facts disclosed, the distinction is more apparent than real. In both cases the oil is fed in at the top in substantially the same manner, and under the force of gravity traverses the entire length of the shaft casing, lubricating all of the bearings in its course."

The trial court then continues (R. 895):

"In the actual operation of the plaintiff's mechanism there is necessarily some escape of thin oil through the bottom bearing; for, as already explained, a perfect closure at this point cannot be maintained. Possibly a larger quantity will escape at the bottom of defendants' structure; but even there, it is to be borne in mind, the lubricant must traverse a bearing of considerable length before it reaches the groove, and to some extent its down flow is resisted by the upward pressure of the water, which is only reduced and not wholly eliminated by the means described."

The trial court appears to have misunderstood the evidence on this point. In the Western Well Works' structure the oil is fed *by gravity* from an ordinary drip cup. In the structure as disclosed by the *Layne patent* as well as in the present Layne structure, some means must be provided to *force* the oil in at the bottom and to traverse the bearings *upward* gradually filling the shaft tubing.



There can be no "escape of this oil through the bottom bearing" in Layne, unless the shaft enclosing tube is full and *excess pressure* is applied to it. The "full tube" is the condition of a static or stagnant system, and of Layne.

In the *Layne Patent* there is no "gravity feed;" there is *no* escape of oil in the Layne patent "through the bottom bearing" because the stuffing box is there to prevent that very thing.

"Stagnation" is mandatory in Layne while "Circulation" is mandatory in Western Well Works.

The Trial Court's erroneous view of the situation, at least with respect to the defendants' structure, is shown in the next paragraph of the decision (R. 895):

"Indeed, it is very probable that in both mechanisms a comparatively static condition is, under ordinary conditions, maintained at the lower end of the casing, due to the counter action or counter resistance of the columns of oil and water, one against the other. In the plaintiff's mechanism a contrivance is provided for drawing or forcing out of the casing the residuum of spent or impure lubricants; but it cannot be said that the groove and vents in defendants' structure perform such a function."

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#### CIRCULATION HAS REFERENCE SOLELY TO THE OIL PATH

In none of the adjudicated cases, either Getty or the Los Angeles changed structure, has "circulation" meant anything more than that the "*lubricant*," admitted at the top of the pump, passed down inside the shaft tubing and after oiling the

bearings ~~were~~ <sup>was</sup> unobstructed in its escape from the tube at the bottom.

The trial judge and the minority opinion in the Appellate Court in the instant case apparently thought that defendants' "circulatory system" had solely to do with "water circulation" overlooking entirely "lubricant circulation" and ignoring plaintiff's admissions as to the circulatory system of lubrication in defendants' pump.

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DIFFERENCE BETWEEN WATER CIRCULATION AS SUCH  
AND LUBRICANT CIRCULATION.

Whatever view is taken, it is always to be remembered that *water* circulation within the tube is one thing and *lubricant* circulation within the tube is another thing. Western Well has both; Layne has neither. If Western Well has only lubricant circulation from top to bottom, with the lubricant fed in at the top and escape out through the drain tubes 28, it is still fundamentally different from Layne in the same way and to a far greater degree than Getty.

At all times when we speak of a "circulatory" system we are not referring to any necessary ingress of water into the shaft tubing but to the passage of the oil through the tubing and out into the well. That thought must be kept clear at all times and no doubt it was failure to accomplish that thought of lubricant circulation that led to error both on the part of the trial judge and of the Minority in the Appellate Court. Neither should sight be lost

of the admission of Layne's counsel (page 103 of their brief):

"*Lubricant*, with the exception of the hard grease packed in the shaft casing by defendants at the time of installing the structure, is fed into the top of the shaft enclosing casing at 12 and passes or *circulates* down the casing through each intermediate bearing and through the lowest bearing into the chamber 27 from which it overflows and *passes through the conduits 28 into the well.*" (Italics ours.)

At the trial the investigation threatened to develop into a side issue as to just "how tight" or "how loose" the joints were between the tube sections and hubs in defendants' structure. Defendants' counsel, in an effort to save the time of the court and keep to main issues of the case, generously conceded that white lead while used primarily by defendants to prevent corrosion, would serve also to seal the joints against the entry of sand and detritus and also that the tapered fit between the hub and tube, if sufficient pressure were applied in assembling, would form a tight joint. Under defendants' view of the case these points are entirely immaterial and we might have stipulated that no water whatever entered the shaft enclosing casing except for the very good reason that this would be a stipulation against the truth and a denial of a very strong selling point of defendants' pump.

Our position was thus stated on the trial (R 789-790):

Mr. TOWNSEND.—May I interrupt to correct your Honor in that matter? That test was

made to see whether the theory of operation, as is presumed to exist as to what takes place in the well, that the lubricant, or whatever is fed in at one point comes out at the bottom. When Professor Lesley applied the analine dye test at the top and it came out at the bottom, it showed that that pump worked on a circulatory system. In a sense, it was not necessary for us, in view of the admissions that that is what happens in the Anderson pump, where the oil goes from bearing to bearing and out in the well. The tests by Professor Lesley conclusively demonstrated that because they were proof positive to the eye, aside from any other deductive information that may be drawn. It brings our pumps within the doctrine of the Getty case, and the decisions of the Circuit Court of Appeals of the Fifth Circuit, that a pump which employs a *circulatory system of oiling* does not infringe the *stagnant system of lubrication* of the Layne patent. Those tests were proof positive of the circulatory system. The leakage is an incidental feature. If you have some leakage it produces the emulsified action. Where the leakage comes from is not so material. I am referring to this now, because I think it may tend to shorten the rebuttal. If it is intended to prove a tight joint, or a loose joint, I am willing to concede now that that Anderson test, if it shows it is a tight joint, that it is a tight joint. But whether those joints are tight or sealed cuts no figure, so long as there is the *communication of the lubricant* through the tube line and out into the well.

“I want to make our position perfectly plain, and show that we lay all our cards right on the table here, and we are not depending on any fine points as to a loose fit, whether it keeps out water or keeps in water. We did feel that by the demonstration we would have an op-

portunity to observe all the conditions, favorable or unfavorable to us, and to see the conditions as they actually existed. There may have been some leakage, or they may [743] not have been leakage. Water came from somewhere. I think that those tests are highly instructive. Their *bona fideness* will not be questioned, I think, even by the plaintiff, because we are not here to trifle about these matters. This is a serious matter affecting the entire industry, and the business of my client."

Once it is admitted that there is this circulation of the lubricant in defendants' device and that the plaintiff's patent is for a "stagnant" system of lubrication, the difference in principle between the two devices becomes an established fact.

This is made more apparent because in the Getty case, as well as in the Los Angeles case, *the shaft tubing as we have already said was tight from top to bottom and no water could pass from the discharge column into the shaft tube*. When one considers that the clearance between the shaft and its lower bearing adjacent to the pump is not to exceed *1/64 of an inch* (R. 1097), manifestly, not much water can pass into those systems, and yet in the Getty and Los Angeles cases such "tight" joints were held nevertheless to have nothing to do with the fact that the *lubricating* systems were "circulatory" and non-infringing.

*Regarding white leaded joints.*—There seems to be an utter misconception on the part of the plaintiff respecting the use of white lead on the tapered hubs of the line shaft couplings of defendants'

pump. The Halstead patent, as well as the commercial structure of defendants, is based on the idea of the hubs telescoping with the line shaft casing so as to permit of quick assembly. It was found that where the hubs were cylindrical, as shown in the Halstead patent, excess leakage from the discharge column into the line shaft tubing took place, whereby the drain ports were insufficient to carry off this leakage water. This would obviously be the case with any sort of an ordinary telescoping fit of two parts roughly machined and where one side, such as the discharge column side, is subject to high pressure with little or no pressure on the inside.

Accordingly there was developed the tapered hub of the defendants' commercial structure, which modification, in addition to affording a somewhat tighter joint to excess leakage from the discharge column, provided a more easy mode of assembly.

The tapered hubs even then did not accomplish the complete result and white lead was added first to make a tighter joint; and, second, to prevent erosion and, of course, as the white lead is exposed to the atmosphere it becomes dried.

Even *white leaded, tapered* joints in defendants' structure have not prevented leakage, as shown by the Stockton installation.

That the tapered joints and the white lead did not in practice always form a water-tight joint is shown by the testimony of plaintiff's witness, Folsom, who at one time was in the employ of defend-

ants. Concerning one of defendants' installations, known as the Stockton Water Company job, on which said Folsom worked, he testified at R. 616-7 that there was so much water inside the shaft casing or tube due to leaky joints that it came out around the top bearing. Asked what he did to overcome this excess leakage he said:

"A. I changed all of the hubs, that is, all of the combination couplings, in order to get hubs that were tight.

"Q. Did you use white lead in any of those that you replaced?

"A. All of them. . . ."

He then identifies the Anderson pump (Exhibit "4") charged to be an infringement as "an exact duplicate" of the Stockton pump. And at R. 626 he further testified:

"XQ. As a result, there was so much more water in that tube, and the pressure was so great, that it came out around the bearings at the top of the pump?

"A. Yes.

"XQ. What did you do to try to overcome that?

"A. I changed the bearings.

"XQ. You put in there the *spiral grooved bearings*, like Defendants' Exhibit 'C' for identification?

"A. The original one was a *spiral bearing*; I put in one with a tighter hub.

"XQ. But you found your spiral grooved bearing would not even then take care of the water?

"A. No.

"XQ. You still had an excess of leakage water?

"A. Yes.

"XQ. Were you ever able to satisfactorily meet that situation and overcome the difficulty of an excess of leakage water into the shaft tubing?

"A. *Not while I was on the job.*" (Italics ours.)

How can plaintiff, in the face of such a statement of its own witness, contend for its "water-tight" theory?

"Leakage" from the discharge column is not the chief factor of difference here between defendants' device and plaintiff's device; but lubrication by "circulation" in defendants' device as against the "stagnant" system of lubrication of plaintiff. Layne has admitted that oil passes to the bearings in defendants' pump and *out through the drain tubes.*

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**THE TAPERED HUB A FICTITIOUS ISSUE INJECTED  
BY PLAINTIFF TO LEND CONFUSION.**

Inasmuch as the plaintiff has laid so much stress on the relative tightness or looseness of these joints and the trial court appears to have been so impressed by the specious arguments of plaintiff, we shall analyze the evidence and the reasons accompanying the respective explanations given by the witnesses at some greater length than the subject might otherwise merit.

On cross-examination Mr. Conant says that practically all the pumps (except a few at the very first)



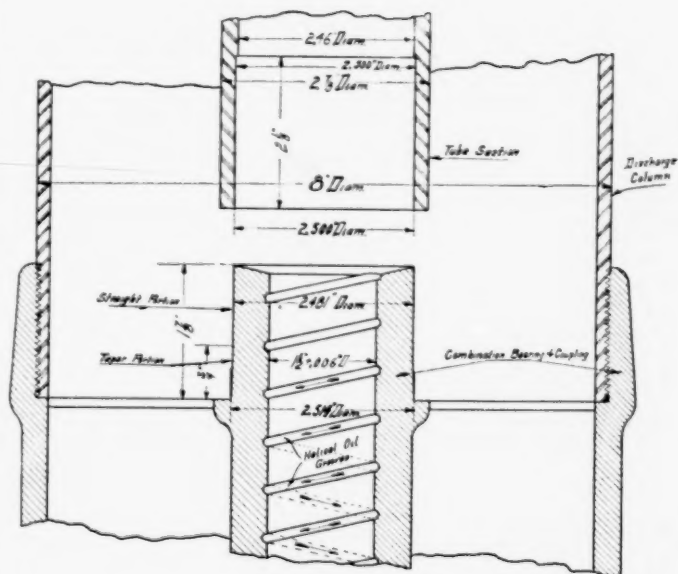
of defendants were made with the hub slightly tapered rather than exactly cylindrical, as shown in the Halstead patent, and states the reason (R. 677):

“The change was a slight taper on the end of the hub nearest to the shoulder. That change was made in order to center the tubes and to provide the necessary seat, because the tubes were shorter than the length of the discharge column.”

This taper begins about  $\frac{3}{4}$  of an inch from the shoulder. *(see cut opposite.)*

Concerning the degree of tightness or looseness of these joints and the amount of leakage, Mr. Conant testifies (R. 685-6):

“Sometimes when you place this tube over the end of the hub, it will slide to a seat by hand, just of its own weight. In that case there is no pressure necessary to seat it. It will have ridden up close to the seat, but not necessarily on the taper, because that taper, as I have said, is  $\frac{3}{4}$  of an inch long. We never let a tube go out which will not pass down  $\frac{3}{8}$ ths of an inch of shoulder, which means that it has gone half way up on that taper. If they are tighter than that, they must go back and be re-reamed. It must go halfway the length of the taper without any obstruction at all, without any resistance. The rest of that taper is a matter of the particular fit that that tube may come. Taking a reamer, which makes the ends of the tube, finishes them on the inside, those tubes vary in thickness, they run the reamer over it—the reamer is the thing that is gaged; the reamer may go in there and make a variation of  $\frac{5}{1000}$ ths or  $\frac{10}{1000}$ ths, because it will spread after the cut has been taken. So the tubes do not fit exactly alike for that reason; one goes down a certain distance, and



SCALE DRAWING OF  
WESTERN WELL WORKS  
"COMBINATION COUPLING"

Showing 3/4 inch taper at base of hub with 1-1/8 inch  
cylindrical upper end and smaller than tube to fit over it.



one goes down not quite so far, although they are manufactured by the same tools."

Mr. Conant again says (R. 680) that whilst the sharp edge of the lower end of the tubing resting on the taper might form a tight joint "to a certain degree; sufficient pressure would cause it to leak. *It is not a commercially water-tight joint.* If I were to build a joint to make it water-tight, I would not use that system."

Capital is sought to be made out of the fact that defendants smear a thin coating of white lead over their hubs before they slip the tubes over, the primary object of which appears to be to keep the parts from rusting or corroding.

No one will deny that white lead smeared over a screw-threaded joint and the parts screwed up tight and the lead allowed to dry will make a tight joint. That is a common plumbers' expedient. Likewise this court knows that white lead under water retains its fluidity for a long while and does not dry out; and likewise, it will be recognized that the tube sections of defendants merely slip over the tapered hubs and have a line contact therewith, and if they are not screw-threaded, when they have any screw-threaded connection the tube can teeter or rock at will on its tapered seat. Manifestly the least movement is going to break any tendency to a seal.

If we need any further evidence on this elemental principle we would refer first to the testimony of Mr. Folsom (R. 618):

"XQ. The white lead between the two metal parts in close contact will prevent those two metal parts freezing together?"

"A. Yes."

And (R. 619):

"XQ. You know that it will harden on its exposure to the atmosphere?"

"A. Yes."

"XQ. So if these joints are moistened with white lead under water they do not dry out, do they?"

"A. No."

As Mr. Conant says (R. 681):

. . . "the white lead is sufficiently fluid to be put on with a paint brush. It is not a sticky preparation with enough hardness (to prevent leakage); it will flow with water; *pressure will force water through it.*"

Of course, in the Anderson pump the white lead there has been exposed and hardened and, naturally, the joints are water-tight or supposedly so. Whether these joints are the same now as when the defendants put the pump in the well back in 1916 and as it operated up to the time the plaintiff said they pulled it from the well in May, 1919, is, of course, not apparent. A tight joint *now*, even if it were the controlling issue in this case would by no means argue a tight joint when the pump (100 feet or more in length) was installed and submerged in the well and in operation.

THESE JOINTS FREQUENTLY LOOSE ENOUGH TO BE  
DISCONNECTED BY HAND.

Thus Mr. Bradford, who has had large experience in handling defendants' pumps and installing same says (R. 712):

"Q. In placing the tube sections in position over the hubs, what care, if any, do you exercise?

"A. In so much as the tubing varies in size, the installers sometimes become careless and drop a tube, or when they slide out of the rope sling let them fall; certain tubes that will do no damage, they will tighten up on the hub before reaching the shoulder; other tubes, being looser, go clear to the shoulder, and with the strain of a certain pump hanging on the combination coupling, I have had couplings broken by the jar of the tube falling.

"Q. You spoke concerning white lead around the joints formed between the end of the tubing where it slipped over the hub. What is the object of that white lead?

"A. It prevents the tube casing member from corroding with the hub member."

And, again (R. 718):

"Q. Will those disassembled tube sections and hubs show evidence of white lead here?

"A. They do.

"Q. What is the condition of that white lead?

"A. Practically the same as the time it was put on. *It had not hardened.*"

Frequently the same tubes are put back on the tapered hubs and as witness says (R. 718):

"They will usually run right to the shoulder by their own weight."

And concerning the fit of the tube on its hub witness says (R. 718):

“I do not think the fit is such as to exclude the water.”

Witness Nash for plaintiff on cross-examination (R. 610) says that the telescoping parts were not always of the same size; that a pipe section which fits over the hub of the bearing is sometimes larger in one case than in the other; that in reaming down the tapered end of the bearing the diameter will vary; that the reaming tool or lathe tool will cut at slightly different diameters in treating one section or another and the same way in treating the cutting down of the tapered ends of the hubs.

Nash says (R. 611):

“That is what the taper is for, to take care of that irregularity.”

Continuing, the witness says that the tube sections are not always of the same length, but that the taper offers compensation for the variation in the end of the sections. Furthermore, witness admits that when the tube is removed for repair he has occasionally found the interior diameter of the tube that slips over the taper varying at times and on recross admits (R. 612):

“XQ. Every time that you slip a tube over its hub section and remove and put it back, each time the part changes its relative diameter?

“A. Yes.”

The reason for reaming inside of the ends of the tube sections is stated by Mr. Conant on cross-examination (R. 689-690):

"That is done because the tube that is used is standard pipe, which is not circular, and varies considerably in diameter, both inside and out.

"XQ. Why do you have any taper at all, then?

"A. We have cut that taper down to the minimum which will insure keeping the tube from rattling. . . .

"There is no need of putting a tube on there at all, unless you keep it somewhere near position."

*Vibration tends to loosen the joints and promote leakage.*

Continuing under cross-examination, Mr. Conant testified (R. 691):

"The rattle is caused by vibration. Vibration will break bearings out of the hub if it comes from the shaft, or the tube, or anything else in connection with a highly rotating speed shaft. . . .

"Vibration originates with the shaft, anything around it that is loose will vibrate with it. . . .

"As far as I know, it is not physically possible to get a shaft of the length of the commercial product which will not vibrate at that speed.

"If the tube would rattle, its own action would enlarge that to such an extent that it would have to be taken out. . . .

"I don't know of a pump where the shaft will be perfectly quiet. . . . Your entire tube line is supporting the individual sections. The supports for the bearings are on webs. If you get something that is of the weight of the tube and it will bounce around and rattle in there, it has the possibility of breaking that bearing, and entirely breaking the webs."



## FACTORS OF SPEED, WEIGHT, ETC.

The usual operating speed of a Western Well Works pump shaft is 1150 revolutions per minute (R. 697).

*Length of Tube Sections:*—The tube sections in a Western Well Works pump are each 6 ft.  $3\frac{31}{32}$  inches long or approximately 6 ft. 4 in. (R. 697).

*Weight of Tube Sections:*—The weight varies with the diameter. A  $2\frac{1}{2}$ -inch tube 6 feet 4 inches long weighs approximately 6 pounds to the foot. A 3-inch tubing weighs 8 pounds to the foot. A  $3\frac{1}{2}$ -inch tubing weighs between 9 and 10 pounds to the foot (R. 700). Thus a  $2\frac{1}{2}$ -inch tube would weigh approximately 30 pounds; a 3-inch tube approximately 50 pounds; and a  $3\frac{1}{2}$ -inch tube would weigh between 55 and 60 pounds. (We understand the Anderson pump is a 3-inch tube.) And assuming lengths of 3-inch tubing as having a pump approximately 140 feet below the surface, making allowances for the combination couplings, 20 lengths of 3-inch tube would be approximately 127 feet in length of tube sections. These sections weighing eight pounds a foot would give us a *total weight of 1316 pounds of tubing alone or considerably more than half a ton!* With 20 lengths there would be 40 slip-joints and with 1300 pounds and 40 joints and a rapidly rotating shaft, it is fairly reasonably certain that all joints are not going to be airtight or watertight!

With the foregoing practical considerations in view and keeping in mind Mr. Conant's observations quoted above from his cross-examination, and particularly his statement:

"As far as I know it is not physically possible to get a shaft of the length of the commercial product which will not vibrate at that speed."

We find practically all of the witnesses in accord with Mr. Conant that vibration is the rule rather than the exception. Thus Mr. Folsom for plaintiff was asked on cross-examination (R. 619) if there is ever any motion, due to the shaft, between the telescoping parts and answered, "I cannot say there was, unless the pump was vibrating."

Mr. Nielsen (R. 661) states that his pump is installed in a crooked well and that "the vibration of the shaft knocked out the same boxing" (meaning the bearings).

Mr. Bradford, whose experience is certainly entitled to weight, says (R. 715):

"The shaft vibration would tend to keep the tube line from making a permanent seal over the hub of the combination coupling."

and that the result of so keeping the seal open

"would allow a small quantity of water to pass through and into the tube line on certain joints. . . .

"It would come from between the discharge column and the casing, itself."

If further evidence was necessary to show that the vibration would keep these bearings open we have only to refer to Prof. Lesley (R. 759):

“The effect of a rapidly rotating shaft, provided the bearings are sufficiently spaced, is to produce vibration. Very few shafts are accurately balanced. The effect of vibration upon any shaft would be to keep it loose.”

And, again (R. 761):

“Vibration with parts weighing what these parts do would necessarily in time jar, wear them loose, which is unavoidable, and that would in time permit greater freedom, or would allow water to enter with greater freedom. That is obvious.”

And (R. 762):

“Q. Have you observed whether there was any vibration of the columns that you were testing out?

“A. Yes, there was not only vibration in these two instances, but there was what may be termed gyrations; of course, the whole assembly is hung from the top of the well, and the whole column gyrates in those two instances, very slowly; not at the rate of rotation of the pump shaft, but a slight gyratory movement, weaving of it; that was very apparent; you could see it moving, weaving around.”

And Mr. Doble, Sr., plaintiff's expert, admits (R. 857) that vibratory action takes place in pumps of this character with regard to the shaft when in rotation if the impeller is not balanced, and that this vibration caused at the lower end “will be transmitted through the entire structure.”

**TIGHT TUBES THE RULE WITH GETTY AND OTHER  
NON-INFRINGERS.**

It is evident from a reading of the opinion of Judge Dietrich that he was misled by the views and unsound arguments of the plaintiff and laid unnecessary stress on the character of the joints formed by defendants' shaft tubing. He overlooked the fact that the use by the Western Well Works of unthreaded tube sections and telescoping hubs, whether the latter were cylindrical, as in the Halstead patent, or tapered, as in practice, was really of no more consequence, as far as the construction of the Layne claims was concerned, than if the tube sections were screw-threaded together.

In the Getty case, and again in the Los Angeles case, the protecting tubing joints were tight. They were screw-threaded and we presume they were water-tight. Screw-threading or bolting together by flanges is the usual method of connecting tubing or pipe sections together. The difficulty of assembly that would result by the peculiar hub construction of defendants in case they tried to have their pump casing and shaft-protecting tubing both screw-threaded, should be self-evident. In other words, you could turn up an outside pipe onto the threads of a connecting member but you would not be sure that you could at the same time be screwing up an inner threaded portion of that member into an inner screw-threaded tube section; hence the plan adopted by the defendants of *screwing their discharge casing section onto the spider and having*

the hub, which is carried by the spider, tapered so as to *slip* into the inner shaft-protecting tube.

Usually where the inner tube is screw-threaded the outer discharge casing is not designed to be coupled by a turning or screw-thread movement, but is provided with a flange which is bolted to an adjacent flange section, after the usual manner of connecting lengths of pipe other than by screw-threads. Inasmuch as in defendants' device each tube section rests at its lower end on an upwardly projecting, tapered hub, it is manifest that the harder or tighter a tube section seats down on its lower seat just that much it draws away from its upper seat.

Mr. Conant indicates (R. 667) that the tube sections of defendants' pump are not only loose but they are *shorter* than the distance between the hub shoulders, so that the tubes could never seat at both ends at once.

"There is no weight taken on the tubing connection on the tubing itself, for the reason that tube lengths, as I stated before are  $1/32$ d of an inch shorter than the discharge column lengths. The face on the bearing hub, which the tube would have to seat on, is exactly the same distance as the seat for the discharge column. Since the tube is shorter than the discharge column, the tube never seats on both ends at the same time. In some installations, it might seat on one end, and in the next installation seat on the other. It is purposely made shorter, so that the discharge column seats and the tube does not. Therefore, it cannot carry any weight but its own individual weight."

**LUBRICATION IN DEFENDANTS' STRUCTURE.**

When a new pump of defendants is installed a certain amount of heavy grease is smeared in around the bearings to wear them down smooth; this grease being put in only at first and in a new pump and in addition to the emulsifying oil admitted at the top continually and by which lubrication is maintained.

That lubrication is of prime importance and that lubrication is not entirely confined to liquid oils, we have only to refer to the Byron Jackson correspondence supra. Thus Byron Jackson writes to Professor Mead, under date of May 5th, 1903 (R. 116-117) concerning a method of oiling that he had in mind whereby he would oil "either with a light soft grease or with a light liquid oil;" and again at R. 141, in his letter of September 5th, 1903, to Professor Mead, Jackson wrote:

"... the only thing that I can do is to specify the method of oiling and as I do not know how much oil mixed with the water would make it unsuitable for brewing purposes, the only thing I can know about it is that it is necessary that some oil should be supplied to make the bearings reasonably durable. The amount of oil used will depend somewhat on the attention given it, making the feeding constant and uniform and not intermittent."

Then again in his letter of October 7th, 1903, to Mead he says:

"Yet I should recommend however a free use of oil in the start and then after it has proved to be running successfully with oil, then the oil may be cut down to a limited supply so

that it will not injure the water for their use but I very strongly recommend a liberal supply at first as you may understand, the pipes that convey the oil have got to have a surplus there to get the oil started and after they are once lubricated and worn a little free then I think there will be no danger of damage to the bearings even if the oil supply is limited."

Thus he stressed the necessity of having excessive rather than too meager lubrication when the pump was new. Apparently, it made no difference whether he used liquid oil or grease. Grease, of course, becomes liquid under stirring and heat generated by frictional rotation.

The use of grease and the length of time it would stay inside the casing was another false issue which was injected into the case, and defendants' counsel again voluntarily conceded that "some of the heavy grease is splashed around there, and some of it is going to stay in the tube and some of it on the shaft" (R. 794). Undoubtedly heavy grease placed within an enclosure of this kind will remain for a considerable time, but its lubricating value is very short lived. It quickly becomes dissipated, and especially in a structure of this kind the high speed rotating shaft will act by centrifugal force to throw the grease against the inside walls of the casing. Obviously no sensible person is going to rely entirely upon heavy grease for indefinite periods to lubricate these bearings, nor is any user or manufacturer going to go to the expense of withdrawing one of these large and heavy pumps every few

months for the purpose of replenishing the grease. There is plenty of testimony on behalf of defendants' witnesses to show that *this grease is put in for the sole purpose of working in new bearings*. Thereafter lubrication of these bearings is done entirely by circulatory system which feeds oil in at the top bearing at the rate of several drops per minute, and according to the admission of plaintiff, this oil subsequently comes out through the drain tubes in the bottom of the casing.

Nevertheless we see an effort now by plaintiff, in spite of his admissions in brief and evidence that defendants' lubricating system is "circulatory," to show it is at the same time "stagnant."

How can defendants' lubricating system be both "circulatory" and "stagnant." Yet plaintiff says in its brief, of defendants' pump (p. 103):

"Lubricant, with the exception of the hard grease packed in the shaft casing by defendants at the time of installing the structure, is fed into the top of the shaft enclosing casing at 12 and passes or circulates down the casing through each intermediate bearing and through the lowest bearing into the chamber 27 from which it overflows and passes through the conduits 28 into the well."

And then on page 124:

"According to the stipulations and admission of defendants' counsel, a '*stagnant*' method of lubrication is employed in defendants' apparatus, so the charge of infringement cannot be avoided on the ground of the absence of same." (Italics theirs.)



This is obviously untrue. Defendants' counsel never did nor could he stipulate anything of the sort so contrary to the evidence.

But on page 136 they say:

"However, there is no similarity between the Getty so-called circulatory system and the defendants' '*stagnant*' system in which the heavy lubricants remain in the casing for years. Also, the mere fact that some of the emulsifying oil and possibly some of the heavy grease, passes out of the bottom of the defendants' casing is immaterial." (*Italics theirs.*)

And then, on the other hand, when plaintiff considers the Layne patent it again blows hot and cold in seeking to escape from the finding in the Getty case that Layne is "stagnant" and trying to show that Layne is now "circulatory."

Advocacy quite outruns itself.

If the use of "grease" as distinguished from "oil" should impress the court as important then this is what the testimony shows as to the use of grease and oil by defendants:

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**LUBRICATION IN THE WESTERN WELL WORKS PUMP.**

Mr. Layne's testimony on the circulating system of defendants has already been quoted. Defendants' lubrication is of two kinds: (a) lubrication of a new pump when it is first started; and, (b) lubrication for general operation.

(a) Mr. Conant says (R. 696), in speaking of the grease that is first put in:

"The grease is put there in order to wear in the bearings. Our bearings are cast iron. The grease is put there, particularly the graphite grease, to form a film on the bearing which will prevent further action of the shaft on the bearing. This grease is only put in there for a temporary purpose; the fact that oil is fed from the surface by means of a drip cup—for instance, if you had a 100 or a 150-foot pump, or more, you have several bearings in there; the oil going to the first bearing would take care of that, but by the time the oil got to the bottom bearing, if there was no provision for grease at each bearing, they might be scoured or burned before the oil ever reached there. By providing grease, it does not run out while the pump is being assembled, the grease remains and passes through the bearing when the pump is started up. . . .

"The grease which passes through the bearings and which lubricates the bearings, for which purpose it is put there, passes out the drain tubes." (R. 697.)

Mr. Bradford says (R. 713):

"At the time the pump is started, we have grease at all the bearings as they are installed; nevertheless, for the first day or two we run in what would be an excessive quantity of oil to properly work in the bearings, later cutting that down to perhaps 10 ounces in twelve hours or twenty-four hours."

Mr. Bradford as a practical installer says (R. 721) that when new pumps are first assembled they first put a quantity of graphite grease just *above* the bearings on the shaft and then smear on a quan-

tity of No. 5 standard cup grease and above that pour perhaps half of a tomato can full of oil at *every fourth joint*. (Every fourth joint would be approximately 25 to 30 feet apart.)

Prof. Lesley describes the installation he observed (R. 749, 750):

*“ . . . the discharge column, including the combination coupling, the tube joint and the shaft were all new, had evidently, from their appearance, never seen any service at all, bright, new castings, merely painted on the exterior. I watched this assembly. The tube line joint instead of being loose, comparatively loose, as in the first installation, was on the whole comparatively tight. I saw an occasional one that would sink almost to the shoulder, perhaps within an eighth of an inch of the shoulder, before it would support its own weight. White lead was also used upon the joints. A small amount of graphite grease was placed above each bearing, perhaps what I could put on the end of my finger; above that, after the tube was put into place, was placed a small quantity, I should guess a quarter of a pint of oil, poured into the top of the tube—heavy duty Zerolene.”* (Italics ours.)

At (R. 629) Folsom describes the use of grease as distinct from lubricating oil in the assembly of a new pump employing three-inch tubing and where the length of the tube sections and the distance between the bearings were as he said 6 feet 8 inches (probably 6 feet 4 inches):

“We usually only packed the grease around the shaft before we slipped the tube down; we used, generally, about 30 inches on a tube, all

we could make stick on, adhere to the shaft, and then we slipped the tube over."

This lubrication was "at the bottom of each section of the shaft. . . . The shaft was already in the bearing."

That this heavy grease is subsequently expelled through the drain tubes, except such as is thrown out by centrifugal action of the shaft and is naturally smeared over the interior of the tube is conclusively shown by Mr. Bradford's testimony (R. 715):

"A. On removing certain installations that were made this spring the grease had been forced out of the drain tube, and as the pump bowls were brought from the well this grease, in the form that it came from the drain tubes, was on top of the bowl.

"Q. Outside of the pump proper?

"A. Laying on the outside of the pump column.

"Q. What was the condition of the pump at the time you saw the milky fluid in the pump installed in the pit? Was the pump working?

"A. The pump was running.

"Q. How long had it been running, do you know?

"A. Two or three years.

"Q. Will you please state what effect, if any, the rotating shaft of a Western Well Works pump will have on the bearings, or on the tube section, and the connections with the bearings of the hubs?

"A. The rotated shaft, working against the spiral of the bearings in the combination coupling, exerts a certain amount of power and tends to drive and force downward the lubri-

cant that is inside of the tube line. The shaft vibration would tend to keep the tube line from making a permanent seal over the hub of the combination coupling.

"Q. And the result of that keeping that seal open would be what?

"A. Would allow a small quantity of water to pass through and into the tube line on certain joints."

Prof. Lesley showed by his demonstration on the Conant pump installation according to standard practice that no matter what was in the tube line in the way of lubricant, whether emulsifying oil, "Zerolene" or "Artic" cup grease, the same passed through the pump and out the drain tubes, the best proof of which is seen by the bottled samples (Defendants' Exhibits Y1-Y10, inclusive (R. 745-757.)

Mr. Doble, Jr., called as an expert for plaintiff, found that there was some sort of a downward circulation of the liquid in the pump when the Western Well Works pump was pulled a few feet up in the well (R. 809-812), and admits (R. 814), that there was a clearance between the grease-lined interior of the shaft-tubing and the shaft.

The same witness, after reluctantly admitting that there was a clearance, further was bound to admit (R. 817) that in each bearing the lubricant would perform its function and in turn would be driven downward by the combined action of the rotating shaft and the helical groove. He also admits (R. 817) that the shaft rotating from 1100 to 1200 revolutions per minute would "tend" to throw the lubri-

cant off by centrifugal action and that that offered a "partial" explanation of the accumulation of the oil or grease that he saw on the interior of the tube.

And finally this (R. 819):

"XQ. Now, Mr. Doble, if water would flow down the tube line, wouldn't oil flow down the tube line, too?

"A. I couldn't see where that water was.

"XQ. Please answer my question.

"A. It would.

"XQ. That is, it would find exit at the same place as the oil, would it not?

"A. Presumably it would.

"XQ. And if that exit was at the drain tubes, No. 28 in model V, the oil would find the same outlet, would it not?

"A. Presumably it would.

"Mr. TOWNSEND. That is all."

Mr. Doble, Sr., admits (R. 822) the helical groove will act as a force feed for any grease in the tube. Prof. Lesley has shown (R. 880) that the helical groove develops in practice a tremendous pressure (60 lbs. per sq. in.), with the direction of discharge downward. It is obvious that if the helical groove will develop "pressure" it will produce circulation. If, then, the grease is moved through each bearing by the helical groove it will eventually reach the drain tubes and be expelled. The evidence all shows this to be an actual fact.

In the face of the foregoing we are unable to see how the trial court in its opinion (R. 895) came to lay such stress on the use of hard grease where he found:

“ . . . the shaft casing is made impervious to water and it is packed for a considerable distance above and below each bearing with a hard immobile grease, the only possible function of which can be to prevent the ingress of water.”

The above is wholly at variance with the true facts as we have seen.

Interesting as the speculations are of the witnesses for plaintiff, they ought not to outweigh the practical experience testimony of men like Conant, Vaughan, Halstead and Prof. Lesley.

If the question is to be decided upon the testimony of the experts, disagreeing as they do, preference should be given to that testimony which is based on practical experience in connection with the matter directly in controversy rather than to plaintiff's experts who show and admit they have had no practical experience with pumps of this character. (Kimball vs. Waters Co., 177 Fed. 239, 244.)

“Doubts are expressed by the expert called by the complainant, whether the device can be made in that way, but the proofs introduced by the respondents are entitled to greater weight than the opinion of any expert, as the question is one which can be demonstrated by practical operation and experiment.” (Hudson vs. Draper, 4 Fisher 256, Clifford, J.)

See also Norton vs. Jensen, 49 Fed. 859, 864.

Infringement, which is a tort, cannot be established by evidence which is speculative in its character, and this is especially true where a witness

who attempts to testify as an expert does not possess the qualifications of an expert.

National Machine Corp., Inc. vs. Benthall Mach. Co., Inc., 241 Fed. 72.

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**(b) SUBSEQUENT LUBRICATION IN WESTERN WELL PUMP.**

Mr. Vaughan says (R. 783-784):

“We use an emulsifying oil for the reason, first, that in its pure state it is a good lubricant, and mixed with a sufficient quantity of water it is still a good lubricant. Second, by reason of the fact that after the pump is shut down, the water in our pump comes back on the inside of the column line, to the static head of the water in the well, and it forms a milky coating over the bearings and the shafting, and the inside of the tube, and prevents rust action. It is very essential that this be done wherever possible, for the reason that as soon as a piece of metal, or steel, or cast iron is exposed to water, especially in an inoperative form, it commences to oxidize, and immediately when starting up the pump the portion that is in the bearing will throw off the rust particles and cause them to cut and wear the shaft and bearing.”

The helical groove assists, as we have seen, in the downward flow and in the circulation of the lubricating medium.

Mr. Folsom, plaintiff's witness, says (R. 622):

That an emulsifying oil was used “so that it would mix with the water when it came in contact with any water. . . . Wherever the water happened to be down in the tube line. . . . At some



point where the emulsifying oil came in contact with the water."

And at (R. 623) when they pulled the pump "the oil ran out at the bottom of the tube . . . whatever lubricant was used."

Mr. Bradford says (R. 713):

"We use a vegetable emulsifying oil. . . .

"That is applied with a sight feed, gravity drop oil cup, feeding at some point or points inside of the tube line, with the drip or moisture that is forced around the ends of the tubes, and runs out at the drain tubes in a white or emulsified form."

Mr. Bradford had an opportunity to observe this discharge from the drain tubes on an occasion where he says (R. 714):

"This pump was installed in a pit, and it was possible, by going down the pit, to observe the lubricant running from the drain pipe, with about ten feet of lamp cord below the bottom of the pit. . . .

"The tubes were dripping a small quantity of white fluid, *probably at the rate of one or two gallons a minute.*" (Italics ours.)

(Note how this quantity discharge compares with Prof. Lesley's test on the Conant ranch.)

In these tests by Prof. Lesley the discharge varied slightly according to the pressure or head pumped against. Thus (R. 747):

"Under free discharge at the top, with a 79-foot head upon the top pump bowl, a gallon in 1.15 minutes. . . ."

With eight pounds pressure equivalent to pumping head of approximately 18 feet ( $8 \times 2.31$ ) the discharge was a gallon in 1.01 minutes; with 16 pounds pressure a gallon in 0.92 minutes; with 26 pounds pressure a gallon in 0.79 minutes. That was with the old pump.

With the new pump in his tests Prof. Lesley found the rate of discharge (R. 755) with free pump discharge as one gallon in 2 minutes and 40 seconds; this discharge being represented by bottle No. 9.

*It is thus apparent that Prof. Lesley's operating conditions were not dissimilar from those found by Mr. Bradford (R. 715, supra) in this old installation which was in operation.*

As a matter of fact Professor Lesley's tests were on a regular stock pump of defendants.

The installation was special only to the extent it was put in a pit or open well so a man could go down to the bottom and observe the pump operating and the action of the drain tubes. A man can by no means go down to the bottom of a bored well.

Manifestly, a rapidly rotating shaft would provide at least as much clearance between itself and any grease around it as is provided between a shaft and a bearing through which it passes. As a matter of fact we know, just as the witness Doble admits to be the case (R. 819), that a rapidly turning shaft would throw the grease off by centrifugal action

and thus open up a space between it and the grease for the oil to pass down through. In addition to that, the spiral grooves are acting at all times like a spiral conveyor by force feed to feed the grease and oil downward.

In addition to this we have seen that the various witnesses—Bradford, Conant and Prof. Lesley—all observed the discharged grease from the drain tubes. Their testimony and the samples of bottled lubricant before the court collected at the time of the Lesley tests are uncontrovertible proofs of circulation; this in addition to the admissions of Layne and his counsel.

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**THE USE OF GREASE AS A LUBRICANT NOT CONFINED TO  
WESTERN WELL WORKS CONSTRUCTION.**

By reference to the opinion of Master in Chancery Helm in the Los Angeles case beginning at R. 1100 the court will see that Judge Helm in finding the changed construction of the defendants' device there as not being infringed, nevertheless excluded the sand and detritus, and the pump of defendant there, which the Master inspected, *showed the use of a large amount of grease*. We quote from that portion of the opinion (R. 1100-1):

"I find that it is true that no water, or sand or detritus was in the enclosing casing or in the bearings and that there was no sand or detritus in the inside of said enclosing casing above the pump neck; *that upon the erection of said pump there was a large amount of grease in-*

*serted in said casing but that it had become worn and was escaping from just below the long brass sleeve which is located in the pump neck. That said long sleeve bearing in said pump is made of brass and was eight inches in length, but said long sleeve bearing does not effect the entire closing of the pump shaft with the enclosing case from water or sand to detritus from the well, from the discharge pipe and from the pump proper in combination with a lubricant as contained therein or in the same manner set forth in said Layne patent, and does not in fact effect any closure of said pump as it is open and the oil and lubricant are free to move therein without obstruction.*

*"I, therefore, find that said defendants have not constructed said pump at the Hart ranch, or otherwise or at any place, since January 23, 1920, in violation of said restraining order or infringement of the said Layne patent." (Italics ours.)*

We thus find both in the Getty case and in the Los Angeles case that there was circulation and escape of lubricant, notwithstanding that in both cases there the defendant used a long sleeve bearing with only the usual clearing ( $1/64$ ) of an inch provided for the shaft; and in the Los Angeles case defendant used heavy grease as well as oil, while *in the Western Well Works' case the conduits 28 not only are of substantial area but provide unrestricted communication for gravity flow from the inside of the oil tube into the open space in the well entirely outside the pump and uninfluenced by any action going on within the pump except such leakage as there may be from the discharge column into*

the oil tube to form an emulsion which practice shows is being formed at all times.

It is extremely difficult to follow plaintiff's argument in regard to an alleged employment of a "stuffing box" in defendants' pump. A stuffing box is defined in the Century Dictionary and Cyclopaedia as "a contrivance for securing a steam, air or water-tight joint." After admitting that water will pass freely between the shaft and lower portion of defendants' bottom bearing, plaintiff says that this same part "operates as a stuffing box." When plaintiff finds it necessary to concede antitheses in order to argue equivalency, their case is indeed desperate.

The trial court said (R. 895):

"If, as I have been constrained to find, in the defendants' actual installations, the shaft casing is made impervious to water and it is packed for a considerable distance above and below each bearing with a hard, immobile grease, the only possible function of which can be to prevent the ingress of water, to impede the progress of the lubricating oil, and itself to serve as a lubricant, it must be held that the term 'circulatory lubricating system' is a misnomer, and that the difference in that respect between the two systems is colorable only."

Grease could not prevent the ingress of water unless the tube were entirely filled with it so that no volume were available.

There was in the evidence presented no statement that grease was placed *below* each bearing in in-

stallation. This would be impracticable and is not done.

Grease could not impede the flow of lubricating oil. Although in each new installation it is packed around the shaft for some distance *above* the bearing, the rotation of the shaft would throw it off and leave a free channel quite as large as that through the bearings.

The trial court appeared to have utterly neglected the evidence as to the action of the helical oil grooves.

*Layne and his counsel, as we have seen, admit that defendants have a circulatory system and that the lubricant goes down from bearing to bearing and then out the end of the shaft enclosing casing and out the ducts at the bottom into the well.*

We accept plaintiff's view of the situation and submit that this in itself is proof conclusive of the *circulatory system of lubrication employed by defendant* in this case and bringing it within the Getty case. All other evidence in the case, including the aniline dye test by Prof. Lesley, only goes to corroborate and sustain defendants' view that the defendants' system of lubrication being a *circulatory system*, and the plaintiff's patent being a *stagnant system*, there is no infringement.

Finally, the trial court in its conclusion sweeps within the embrace of plaintiff's patent any system of lubrication that may be considered "practical

and efficient," thereby contravening the rule so oft laid down that you cannot patent a principle or function, or, as the court said in the Getty case:

"The Layne patent must rest not upon the idea of closure which would not be patentable, apart from the method by which it was accomplished, but on the *means of its accomplishment*, as disclosed in the specifications."

That all lubricating systems are not equivalent is shown by plaintiff's expert, W. A. Doble, Sr., in connection with an objection to Eisler being considered an equivalent of Layne: There Mr. Doble said (R. 842):

"XQ. You pointed out that that was an objection to this method of lubrication in Eisler by using these pipes, the fact that some bearings would get more than others?

"A. A material difference in the system is that that is a series lubrication and this is a parallel lubrication."

Surely there is less difference between Layne and Eisler than there is between Layne and Halstead.

This court has frequently said that where there is a difference in function, or difference in mode of operation, or difference in principle of construction, or variation in means between two machines or devices, even though they produce the same result, there is no infringement.

"In *Burr v. Duryee*, 1 Wall. 531, 572 (17 L. Ed. 650), the court said:

"That two machines produce the same effect will not justify the assertion that they are sub-

stantially the same, or that the devices used by one are therefore mere equivalents for those of the other. . . . An infringement involves substantial identity, whether that identity be described by the terms "same principle," same "modus operandi," or any other. It is a copy of the thing described in the specification of the patentee, either without variation or with such variations as are consistent with its being in substance the same thing. If the invention of the patentee be a machine, it will be infringed by a machine which incorporates in its structure and operation the substance of the invention; that is, by an arrangement of mechanism which performs the same service or produces the same effect in the same way.'

"And in *Westinghouse v. Boyden Power Brake Co.*, 170 U. S. 537, 569, 18 Sup. Ct. 707, 723 (42 L. Ed. 1136), the court said:

" 'But, after all, even if the patent for a machine be a pioneer, the alleged infringer must have done something more than reach the same result. He must have reached it by substantially the same or similar means, or the rule that the function of a machine cannot be patented is of no practical value. To say that the patentee of a pioneer invention for a new mechanism is entitled to every mechanical device which produces the same result is to hold, in other language, that he is entitled to patent his function.' "

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**CIRCULATION AIDED BY DEFENDANTS' HELICAL GROOVE BEARINGS.**

"Circulation" in the Western Well pump is accentuated by the use of the spiral, or rather helical-groove-feed bearings.



Plaintiff's witness Folsom says (R. 622) that the defendants lubricated "by a drop oiler from the top. . . . Gravity feed," and that the function of the spiral grooved bearings "was to conduct that lubrication down the shaft."

One of these "spiral" (or more properly speaking) *helically grooved bearings* is in evidence as defendants' Exhibit "C." Conant says this spiral or helical groove in the bearing is for the purpose of *assisting the downward flow* of the oil from bearing to bearing. In other words "circulation" in the Western Well Works pump is *speeded* and *accentuated* by the use of a spiral groove.

Mr. Doble, Sr., at R. 822, while admitting that the oil or grease will be fed down, attributes an additional function to it in assisting in the lubrication of the bearing surface, Mr. Doble observing:

"If the groove becomes stopped up so that it would not function sufficiently, the bearing would become dry, but, due to the rotation of the shaft, and this helical groove, the rotation of the shaft gradually draws the grease out of that groove and distributes it over the surface of the bearing; but its real function is to prevent too rapid a flow of grease through it. If you had a vertical groove, the flow would be too rapid; but by the helical groove, the distribution is much more complete; it serves the purpose of preventing too rapid a feed of the lubricant."

This testimony of Doble is to be viewed in two aspects: (1) as confirming what all the other witnesses say about the groove that it carries the lubri-

cant downward; and (2) as showing how poorly qualified the witness is as an expert on this subject because Prof. Lesley, by his interesting tests and explanations to the court on surrebuttal, confirms the down flow statement of Mr. Doble but directly refutes Mr. Doble's further speculation on the objects and intentions of the defendants in using the groove; Prof. Lesley saying (R. 879-8):

"Under my directions we constructed a bearing structure involving a single bearing, provided within a thousandth of an inch—within such dimensions as are possible with reamers—with the same diameter as the standard bearing for a  $1\frac{1}{4}$  shaft.

"Q. Provided with the same pitch of helical groove?

"A. Provided with the same pitch of helical groove, and same diameter of shaft supplied, and support for the bearing, so that there would be no thrust upon one side, so that it would be simply hanging vertically within the bearing, and arranged to rotate it at various speeds. We determined, first of all, the pump action of the spiral bearing. Mr. Doble, by the way, is entirely correct, that it should be called a helical groove; I have simply adopted the term 'spiral,' because that is the term the Western Well Works have used. The action of this helical groove is to conduct lubricant downward, since the groove is downward in the direction of rotation—conducting it downward with considerable rapidity and with astonishing force. I used a number of lubricants. I used water alone. Water would be conducted downward with the ordinary speed of rotation of about 1100 revolutions per minute, with approximately a pound pressure per square inch—would maintain a pound pressure per square inch. A mixture of water and emulsifying oil

would be conducted downward with greater pressure, maintaining a higher column of lubricant. The pressure developed, the downward pressure developed by the lubricant itself passing through that helical groove, appeared dependent upon the quantity of oil, upon the viscosity of the fluid. With the pure lubricant, itself, the pure oil, itself, it developed pressure of 60 pounds per square inch, with a single bearing operated at normal speed, normal clearance of the bearing, and a normal size oil groove."

The number of these helical groove bearings increases the downflow, as Prof. Lesley adds:

"If the tube were full, of course a series of bearings would act as a multistage pump, one bearing would develop some pressure, on the next one further pressure, and so on."

And (R. 883):

"I would like to say to the Court that the action surprised me, I did not myself believe that it could be so considerably different."

(The apparatus by which these tests were made is in evidence as Defendants' Exhibit "Z.")

*So fast was this feed*, Prof. Lesley says (R. 885) that in feeding the fluid to the grooved bearing of Exhibit "Z":

"I poured it in in a fair stream, I should say perhaps a pint, in two or three minutes."

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#### THE THEORY OF THE HELICAL OIL GROOVE.

When two surfaces with a viscous fluid between them are moved relatively to each other, the fluid

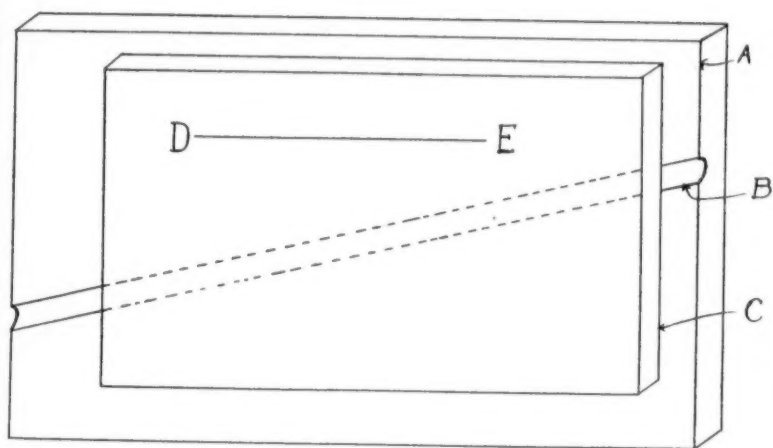


Fig 1.



tends to adhere to each surface and is consequently spread. If one of the surfaces is provided with a groove the groove will become filled with the fluid. If the groove in the one surface is oblique to the direction of motion of the other or, putting it in another way, if the direction of motion of the smooth surface has a component in the direction of the groove, the fluid contained in the groove will be moved along it.

To illustrate, in the accompanying Figure 1 let A represent a surface provided with a groove B and C another surface which moves relatively to A in the direction ED. The direction ED has a component in the direction of the groove B. A lubricant or a viscous fluid which is between the two surfaces and which fills the grooves will, by the motion of the surface C in the direction ED, be carried along the groove. It is obvious that it will make no difference which surface is stationary relative to the earth or which moves. It appears that the quantity of lubricant that would be moved along the groove in a given time should vary with the relative velocity of the two surfaces.

It is obvious that the form of the surfaces is of no consequence. The action would be the same with cylindrical as with plane surfaces. Therefore it appears clear that a bearing such as used for the line shaft of the pump manufactured by the Western

Well Works, Inc., will, with respect to feeding lubricant through it, function in the following manner.

It is first to be noted that these bearings are provided with helical oil grooves and that the helix is downward in a counter clockwise direction, viewed from above, which corresponds to the direction of rotation of the shaft.

Lubricant fed to the top of such a bearing will be carried downward through it by the combined action of the helical groove and the rotating shaft.

Provided that sufficient lubricant is supplied to keep the groove full, the amount that passes through will vary with the rotative speed of the shaft.

While the more viscous fluids will pass through the bearing with less rapidity than the less viscous ones, since the action of gravity upon them will be less effective in causing flow, it appears that for the part of the flow which is due to the combined action of the helical groove and the rotating shaft there should be comparatively little difference between fluids of various viscosities.

The lubricant is fed through the bearing by the combined action of the helical groove and the rotating shaft. It seems obvious that a helical groove would convey a lubricant more readily than a straight one in an axial direction, it

being common practice to provide such grooves for that purpose on bearings of all sorts.

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#### JUDGE MORROW'S OPINION.

Judge Morrow, speaking for the majority of the Court of Appeals for the Ninth Circuit at R. 1125-1126 analyzes the three claims in suit into their constituent elements. Later he calls attention to the cardinal rule so often recognized by this court that the claims of a patent are the measure of the monopoly granted, citing *Keystone Bridge Co. v. Phoenix Iron Co.*, 95 U. S. 274, where the Supreme Court of the United States says, on page 278:

"But the Courts have no right to enlarge a patent beyond the scope of its claim as allowed by the Patent Office. . . . When the terms of a claim in a patent are clear and distinct (as they always should be), the patentee, in a suit brought on the patent is bound by it. *Merrill v. Yeomans*, 94 U. S. 568. He can claim nothing beyond it. But the defendant may at all times, under proper pleadings, resort to prior use and the general history of the art to assail the validity of a patent or to restrain its construction. The door is then opened to the plaintiff to resort to the same kind of evidence in rebuttal; but he can never go beyond his claim. As patents are procured ex parte, the public is not bound by them, but the patentees are. And the latter cannot show that their invention is broader than the terms of their claim; or, if broader, they must be held to have surrendered the surplus to the public."

In connection with the elemental structure of the claims the Appellate Court calls attention to the



fact that the element specified as the "rotary pump" of claim 9 is the "pump" of claim 13 and the "rotary pump" of claim 20; these different designations of the same element having in each case the same identical function and the approved form of the "pump" used by the inventor being a centrifugal pump.

Next the court finds that the element specified as "jointed pump shaft" of claim 9 is the "actuating shaft" of claim 13 and the "line shaft" of claim 20; this shaft in each instance performing the same function and described in the specification as "attached together by means of sliding keys so as to allow of some vertical play with relation to each other".

The court finds that the next specified element of claim 9, i. e., the "closed casing surrounding the pump shaft" is the same as the "sectional casing" of claim 13 and as the "well casing" of claim 20 by which the shaft is "entirely closed off from the water in the well".

The Court of Appeals in the Van Ness case (213 Fed. 804, 807) held that claims 9 and 20 were substantially alike and saying:

"The word 'closed' in claim 9 seems to mean as much as the words 'entirely closed' in claim 20. . . .

"It seems quite clear that the idea of a protected casing for a pump shaft without restrictive interpretation would contain no novelty and would not be patentable, and, if this ele-

ment in the patent is given the unrestricted meaning that its language admits of, it would destroy the claim."

In connection with claim 13 the Appellate Court for the Ninth Circuit further calls attention to the additional elements of "a fixed block" with "bearings for the shaft" and the fact that the casing is "closed at the top and provided with an air vent".

The court in answer to the plaintiffs' plea that these claims must be read as possessing three functions, that is, namely:

- (1) Protection to the shaft bearings;
- (2) Lubrication;
- (3) Shaft alignment (R. 1128),

quite properly points out not only that *these claims do not set out the alleged triple function*, but they do not even specify the *means* for accomplishing such a function. The court quite correctly pointed out that the patent specification of Layne includes two specified functions: (1) the function of protection to the bearings by closing off the bearings from the water and sand pumped to the surface and (2) enclosing the bearings to provide for lubrication; but, says the court:

"Further than this the specification does not go."

As to the "plumb bob" theory of the plaintiff the court rightfully calls attention to the fact that nothing is found for any such attribute of the Layne

pump in claims 9, 13 or 20; that the nearest approach to claiming such an idea is in *claim 18* where the word "suspending" is used. Claim 18, however, it is to be noted, provides, as do so many of the claims for "fixing" the pump "at any desired point in the well casing, and means for operating the fixing devices from the top of the well."

Judge Morrow called attention to the fact that claim 7 calls for a series of wedges suspended by rods and that in claim 8 these wedges are mounted upon toggle links and in answer to the claim that this device enters into the mechanism of the shaft casing and also has the function of alignment of the shaft Judge Morrow properly says:

"There is no charge that either claim 7 or claim 8 has been infringed by the defendants, and it appears from the testimony that this device has been abandoned by the plaintiff and is no longer a part of the mechanism in actual use."

Continuing the court says (R. 1130):

"It seems clear to us that the alignment is not a function of the shaft casing, but is a function of the means used for suspending the apparatus from the top of the well, combined with the law of gravity." . . .

We, therefore, opine that the controversy here is largely going to hinge on whether or not "alignment by suspension" and the "plumb-bob" action is or are elements of any of the claims in suit. The best answer to this is the claims themselves and the

specification of the patent in suit. One may search in vain to find one single word sustaining the "plumb bob" theory or the "*alignment by suspension*" theory which took root in the decisions in the Fifth Circuit. The only "alignment means" provided in the Layne patent is by the "system of wedges" which are suspended and operated from the top.

The following constitutes all that can be found in the Layne patent on the subject.

Thus in the preamble, page 1, beginning line 15, the patentee states among his objects: "To provide means by which a pump *may be placed in any desired position in a well, centered, raised or lowered and fixed* in position by manipulating from the outside entirely" and further "to provide improved means for centering and *fixing* the pump in proper position in the well casing"; and lines 37-38 "to provide an automatic centering device for the pump in the well."

On page 2, beginning line 1: "In order to previously assemble all the parts and then put the pump into the well and *fix it* in position therein, I provide a system of *wedges 33*, which serve to *fix the pump in place* and *hold it* in the proper vertical position, designed to be operated by means from the top of the well, avoiding the necessity of a man's going into the well in order to *fix the pump in place.*"

And, again, beginning page 2, line 17:

"The wedges 33 may be attached to links 29, which are carried by a sliding collar 28 on the casing 20, the collar 28 being operated by a rod 27, which runs to the top of the well, so that from the top the *wedges 33 may be raised and lowered into place and can be tightened therein.*"

And, continuing:

"The toggle links may be also connected by links 32, to a collar 31, and the collar 31 to a rod 30, which extends to the top of the well as before, in order to manipulate it without going into the well."

Further on regarding the matter of fixation of the pump in the well the patentee says, page 2, beginning line 28:

"Thus in order to obtain greater power and *fix the wedges* more securely in place, it will be observed that by pulling up on the rod 32, the toggle links 34 will cause the wedge blocks 35 to press with great power against the wedges 33, and thus *fix the pump casing in place wherever desired.*"

And concerning *centering* the patentee says, page 2, beginning line 105:

"The wedge system illustrated for *tightening* the pump casing in place may also, if desired, be used to *center* it with respect to the casing."

And, again, page 2, line 112:

"In Figures 10 to 13 I have shown a modified form of the apparatus which uses a similar series of wedges for *fixing the pump in place*, as illustrated best in Figure 11."

And then again page 3, beginning line 5:

"It will be plain that by turning the screws 65, the bottom wedges are drawn upward against the wedges 62, by which the casing of the pump is fixed in any desired place and tightened in the well casing 16."

The absolute rigidity and stiffness of the pump structure of the patent is emphasized by the following (page 3, beginning line 34):

"I prefer generally to allow for free flow of water down the well outside of the pump casing and the pump, in order that the water may be drained into the well when desired, rather than pumping the water out; which I attain by dropping the wedges 63 and thereby loosening the wedges 62 from the casing 16, permitting water above pump to pass into the strata supplying the well."

The idea of "permanent fixing" finds further expression from the following (page 3, beginning line 50):

"In general I prefer the form of apparatus as shown in Figure 1, both because the means for fixing the pump in place is more easily adjusted, and because of the superior mounting of the pump shaft inside its sectional casing as therein shown, and making the pump shaft in sections. But in cases where the pump will not be moved for a long time, the device of Figure 11 may be used for wedging it in place."

And again (page 3, beginning line 69):

"It will be seen also that the toggle levers used for actuating the wedges may be used or not, as desired, since the wedges alone will be amply sufficient in the apparatus of Figure 1, as well as in that of Figure 10."

Then turning to the claims we find the following expression in various forms constituting an element of claims 1, 2, 3, 4, 5, 6, 7, 8, 18, 19, 21 and 22: "Means for *fixing* the pump at any desired point in the well casing."

The foregoing quotations show what an important position the wedges and operating means occupy in the Layne patent with regard to the matter of "fixing", and "centering" or "aligning" (because centering of the pump is with the view of aligning it).

The New Standard Dictionary thus defines "to fix":

"To fasten, attach or secure firmly or immovably; to set or place permanently; make firm or secure; establish; as to fix a statue upon a pedestal."

It is self evident that the idea of "immovability" and "fixed" position, is wholly inconsistent with the "pendent," "plumb bob" theory of plaintiff's counsel. It would, therefore, appear that the Circuit Court of Appeals for the Ninth Circuit were fully justified in their conclusions that:

(1) Any alignment accomplished in the Layne patent was by means of the wedges; and

(2) That these wedges never entered into the claims sued on nor into the defendants' structure.

Except with respect to this one point concerning the function of alignment the Fifth and Ninth Circuit decisions are in harmony.

Both circuits find:

(1) The patent and particularly the claims sued on are valid;

(2) That the Layne patent is for a "stagnant" system of lubrication; and

(3) That the defendants in the Getty case and in the Western Well Works case differed alike from plaintiff's patent in that the said defendants' systems of lubrication were each "circulatory", thereby jointly differing in principle from Layne's "stagnant" automobile-crank-case system, so as to constitute non-infringement in each case.

In making such findings the courts were each following the rule so often laid down by this Honorable Court: That one structure in order to infringe another must operate on the same principle as that other, otherwise there would be a violation of the rule laid down as early as *O'Reilly vs. Morse*, 15 How. 3, that the principle or function of a machine is not the subject of patent.

As this court said in *Westinghouse vs. Boyden Power Brake Co.*, 170 U. S. 1136, 1143:

"The difficulty we have found with this claim is this: That, if it be interpreted simply as a claim for the function of admitting air to the brake cylinder directly from the train pipe, it is open to the objection, held in several cases to be fatal, that the mere function of a machine cannot be patented."



And, again, 1147:

“But even if it be conceded that the Boyden device corresponds with the letter of the Westinghouse claims, that does not settle conclusively the question of infringement. We have repeatedly held that a charge of infringement is sometimes made out, though the letter of the claims be avoided. (Citing numerous cases.) The converse is equally true. The patentee may bring the defendant within the letter of his claims, but if the latter has so far changed the principle of the device that the claims of the patent, literally construed, have ceased to represent his actual invention, he is as little subject to be adjudged an infringer as one who has violated the letter of a statute has to be convicted, when he has done nothing in conflict with its spirit and intent.”

The error on the part of the trial court in the Western case, particularly as concerns infringement, is believed to have resulted from two causes:

- (1) Over-estimation of the so-called “commercial success” of the alleged patented invention; and
- (2) A failure to bear in mind the elementary rule that comparisons for the purpose of spelling out an infringement should always be between the structure *shown and described in the patent in suit* and the defendants’ structure and *not* by a comparison of the defendants’ structure with the commercial structure of the plaintiff.

The proper evidence from which to determine infringement is the patent in suit and the device made by the defendants.

Blanchard vs. Putnam, 75 U. S. 420, 19 L. Ed. 433.

Infringement is a question of law.

Singer vs. Cramer, 192 U. S. 265; 48 L. Ed. 437.

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**"COMMERCIAL SUCCESS" HAS NO PLACE IN THIS CASE.**

To support its argument for a construction of the patent in suit broad enough to cover the defendants' device, the plaintiff says that its system has gone into extensive use and has supplied a long-felt want. This is petitioner's only basis for urging a broad construction of the claims of its patent. There might be some force in this argument if the Layne pumps *as installed* were like the patent in suit, but they are not. The pumps actually installed by plaintiff (see Plaintiff's Exhibit 8, R. 602) differ from the patent in suit in the same essential particulars in which defendants' pump differs from the patent in suit, only in less degree.

It is well established that the test of "great commercial success" is *not* admissible unless the question as to patentable invention still remains *in doubt*,—that is, until after all the regular tests (both affirmative and negative) have first been applied, and the question still remains in doubt.

It is equally well established that proof of "commercial success"—in the exceptional cases where that test is admissible at all—does *not* establish patentable invention, unless the presence of the patented subject-matter is shown to be the *chief*

*factor* (if not the *only* factor) of the commercial success. That is, the evidence must *eliminate all other factors* as substantial contributors to the commercial success, e. g.: extensive advertising; aggressive salemanship; the conjoint presence of other features, either unpatented or covered by other patents not in suit.

The chief question at issue here is not one of *validity* of the patent, since all of the courts have uniformly held the patent valid. The main question relates to *infringement*; and alleged "commercial success" cannot be made use of to enlarge the scope of the patent. Among the cases decided by this court wherein commercial success was given consideration are such as *Smith vs. Goodyear Dental Vulcanite*, 93 U. S. 495 and *Potts vs. Creager*, 155 U. S. 600, which had to do with patentability resulting from a change of one material for another.

In the case of *Olin vs. Timken*, 155 U. S. 155, Chief Justice Fuller said:

"And while the patented article may have been popular and met with large sales, that fact is not important when the alleged invention is without patentable novelty. *Duer v. Corbin Cabinet Lock Co.*, 149 U. S. 216 (37:707).

"If, however, such a construction could be put on the Timken patent as would save it from being held invalid for anticipation or for want of invention, that construction would certainly exclude appellant's structure."

Commercial success even if found to favor Layne here is material only where the question of *patentability* is in doubt.

"If the generality of sales were made the test of patentability, it would result that a person by securing a patent upon some trifling variation from previously known methods might, by energy in pushing sales or by superiority in finishing or decorating his goods, drive competitors out of the market and secure a practical monopoly, without in fact having made the slightest contribution of value to the useful arts. The very case under consideration is not barren of testimony that the great success of the McClain pads and clasping hooks, a large demand for which seems to have arisen and increased year by year, is due, partly at least, to the fact that he was the only one who made the manufacture of sweat pads a specialty, that he made them of a superior quality, advertised them in the most extensive and attractive manner, and adopted means of pushing them upon the market, and thereby largely increased the extent of their sales. Indeed it is impossible from this testimony to say how far the large sales of these pads is due to their superiority to others, or to the energy with which they were forced upon the market.

"While this court has held in a number of cases, even so late as *Magowan v. New York Belt. & Pack. Co.* (ante, 981), decided at the present terms, that in a doubtful case the fact that a patented article had gone into general use is evidence of its utility, it is not conclusive even of that—much less of its patentable novelty."

*McClain v. Ortmyer*, 141 U. S. 419;  
35 L. Ed. 800, 804.

And again in the recent case of *Advance Corp. vs. Reflex Co.*, 284 Fed. 117, C. C. A., 7th Cir.:

“While commercial success may be helpful in resolving doubt as to novelty and invention, its persuasiveness may be more or less diluted, when causes other than that of novelty of the article apparently and materially contribute to the success. Here there appears, not only the claimed better quality, but the evidence shows also a campaign of extensive and apparently judicious advertising, which, coupled with, doubtless, good business and merchandising methods, has unquestionably been very influential in making a market for this product, beginning when appellant became interested in it, 10 years after the patent grant.”

Manifestly the court in the *Getty* case meant nothing more than that when it credited Layne with commercial success to uphold the patent and save it from invalidity.

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**REPLY TO PLAINTIFF'S BRIEF.**

Plaintiff sets up two lines of argument: One embraced in its brief accompanying its Petition and the other embodied in its main or so-called Opening Brief.

Naturally and foremost the doctrine of *Adamson vs. Gilliland*, 242 U. S. 350, is urged with persistence on this court.

DISTRICT COURT'S OPINION AS TO INFRINGEMENT  
NOT UNASSAILABLE.

It is submitted that the presumption of correctness which attaches to the findings of a trial judge on questions of disputed fact has no application here. The Trial Judge did not see the mechanism of plaintiff nor of defendants operated (as was the case in *Hildreth vs. Mastoris*, 254 U. S. 622.) Furthermore, he substituted for the testimony of all the fact witnesses, including the patentee Layne, the *theories and conjectures* of the expert witness, Doble, Sr., coupled with certain speculations on his own behalf.

In *Adamson vs. Gilliland*, *supra*, the question had to do solely with regard to the date on which certain castings were made, which castings were part of an alleged prior use. Under the well established rule prior use has to be proven beyond reasonable doubt. There was conflicting testimony relative to the *dates of making of the castings* and the trial judge who had an opportunity to observe the demeanor of the witnesses found that the date contended for by the defendant had not been proven with sufficient definiteness. The Court of Appeals reversed the trial court and the Supreme Court in turn reversed the Circuit Court of Appeals for the reasons stated *ante*.

In the instant case the issue does not have to do with prior use, but rather with *infringement*, which is a question of law, *Singer vs. Cramer*, *supra*.

The evidence on which Judge Dietrich based his findings consisted chiefly as we have said of opinion testimony, which testimony and all the other evidence in the case was considered in full by the Circuit Court of Appeals. The District Court's findings as to the operation of defendants' pump are speculative in the extreme.

For instance Judge Dietrich in his opinion (R. 895) said in comparing defendants' mode of lubrication with that of the Layne patent:

*"Possibly a larger quantity will escape at the bottom of defendants' structure. . . . Indeed, it is very probable that in both mechanisms a comparatively static condition is, under ordinary conditions, maintained. . . . But, were the contrary view to be taken, it would still remain true that the plaintiff's lubricating system is practical and efficient, and is a part of its combination invention, the fruits of which another may not rightfully appropriate by substituting for a single and successful feature other means for accomplishing the same result."*

As a matter of fact except as to the first conclusion, the learned judge was in error, because all the witnesses including the patentee Layne and his counsel admit defendants' system is not static but circulatory; and the patentee discarded the lubricating system of his patent as *impractical and inefficient*.

The District Court was only able to find infringement by placing a new construction upon the Layne patent, and one which was at variance with the

findings of the Circuit Court of Appeals for the Fifth Circuit. This new interpretation on the part of the trial judge was arrived at by substituting for the language of the patent his own conjectures, aided somewhat by the theories of plaintiff's expert and the arguments of plaintiff's counsel. When the District Court says:

"In the actual operation of the plaintiff's mechanism there is necessarily some escape of thin oil through the bottom bearing, for, as already explained, a perfect closure at this point cannot be maintained,"

it certainly is overlooking entirely the following provision of the Layne patent:

"I consider it of great advantage also to arrange the pump shaft in a closed casing with stuffing box at surface of ground at top of pump, so that by the use of the packing boxes *an air-tight chamber* can be maintained, and water kept out of the casing 20, or kept filled with clean liquid, if desired, thereby providing an efficient lubricating system for all bearings of the pump."

The District Court also erred in attributing this conclusion to "the actual operation of the plaintiff's mechanism," since the mechanism of plaintiff's *patent* was never actually operated. Layne, the patentee, on cross-examination, admitted that he had never used his "wedge system," nor his "toggles" nor his "stuffing boxes" nor his "chain and sprocket mechanism" for tightening the latter.

So far as *fact* witnesses are concerned there is no conflicting testimony as to the mode of opera-



tion of defendants' lubricating system. The trial judge did not hold that defendants' lubrication was of the *stagnant* type, but rather that it *might become* stagnant if the tubes were sufficiently packed with hard grease. In reality, the finding of the trial court was one of mixed law and fact. It depended in part upon the mode of operation of defendants' pump but to a *greater extent* upon an interpretation of the Layne patent. In other words, where a Court of Appeals had previously held the Layne patent limited to a "stagnant" system of lubrication the trial judge in the present case found it necessary to adopt a different interpretation of the patent in order to show infringement on the part of defendants. We know of no decisions which hold that the findings of a trial judge on a question of infringement are in any sense *unassailable*.

Petitioner's main brief or so-called "Opening Brief" from page 8 to page 75 is devoted entirely to an effort to explain the meaning of the three claims in suit. While contending that the present invention is marked by great simplicity, and notwithstanding the fact that the three claims in suit collectively embrace not over fourteen lines, plaintiff finds it necessary to devote over seventy pages in an attempted explanation of the meaning of the said claims in the face of the fact that the courts have uniformly held that the patent itself must be sufficiently clear and definite to apprise the public as to the exact nature of the invention (Grant

vs. Raymond, 6 Pet. 218; Beidler vs. U. S., 253 U. S. 447). Either the patent is vague and indefinite to the point of invalidity, or else plaintiff is seeking to warp the apparent meaning of the claims so as to cover something not contemplated on their face.

It is scarcely necessary for this court to do more than to read the Layne patent to see the fallacies and manifold weaknesses in plaintiff's case. Nearly every argument and assertion contained in plaintiff's brief relative to the meaning and scope of the patent is directly contrary to the language and evident intent of the specification and drawings of the patent.

Among the many misstatements as to the purposes and operation of the mechanism of the Layne patent may be mentioned the following:

- (1) "Plumb-bob" type of suspension (plaintiff's brief, p. 13;
- (2) Mode of installing "unit by unit" (plaintiff's brief, p. 15);
- (3) Lubrication by "gravity flow" supplying bearings from top to bottom "in series" (plaintiff's brief, p. 28);
- (4) Leaky stuffing boxes (plaintiff's brief, p. 30).

These attempts on the part of plaintiff to misrepresent the meaning of the patent will be taken up for detailed consideration infra.

Layne is not a "Pioneer"; neither is his invention "Revolutionary"; nor is it mildly "Fundamental" nor "Generic."

So often are these catch phrases employed through plaintiff's brief that we ought not to forget what the Appellate Court said in the Getty case (262 Fed. 141, 143):

"The Layne patent too nearly resembles the Crannell patent to be called a pioneer," and that "*its advance over Crannell prevented Crannell from being considered by us an anticipation, and was enough to show novelty, but it stops there,*" and that "the Layne patent must rest, not upon the idea of closure, which would not be patentable apart from the method by which it was accomplished, but upon the *means of its accomplishment*, as disclosed by the specifications of his patent."

And page 142:

"It was only by giving the claim this restricted meaning, and limiting it to the description in the specifications, that the claim could be sustained." (Italics ours.)

In other words, a narrow, specific and secondary patent.

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#### PLAINTIFF'S MYTHICAL EIGHT PROBLEMS.

Plaintiff's counsel in their original brief accompanying the petition for writ of certiorari, beginning at pages 29-30 give eight so-called "problems" which Layne supposedly solved in his 1903 pump.

The first two of these problems are in reality but one, and read as follows:

“(1) How could he obviate the necessity of digging the pit, and thereby eliminate,

“(2) the risk necessarily assumed by man due to (a) danger of caving while the pit was being dug or while the men worked in the pit boarding it up or installing the pump; and

“(b) the risk of personal injury or loss of life (frequent with the dug pit construction) due to the necessity of man descending into the pit to lubricate, make necessary repairs, etc.?”

The answer is that Layne did *not* consider that a pit was a source of danger or a menace to life and limb. His patent drawings very clearly show a pit 15 in both forms of the alleged patented device. Moreover, the British patent to Mather 1894, R. 1039, and U. S. patent to Ivens, No. 705,844, filed more than two years prior to the filing date of the Layne application, each show a deep well of *small bore* having a pumping mechanism arranged pendent therein and so constructed and operated as to do away with the necessity for a pit or for a man descending into the well for the purpose of repairing the pump. Hence the pit problem, if it be such, was solved before Layne's time.

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#### THE PIT PUMP A POPULAR RIVAL TODAY.

It has been shown by the testimony (R. 784-6) without contradiction or qualification, that *there is still today a very large trade in pit pumps* of the

identical character shown in said blue print, plaintiff's exhibit "2".

The third problem which the brief states confronted Layne is as follows:

"(3) How could he construct and assemble on the ground a pump structure of the necessary great length (Layne pump structures, 400 to 800 feet long, have been installed) and still be able to insert it in the small bore of a well?"

Here again is a reference to the Layne & Bowler 1920 pump. The Layne patent in suit never contemplated any structure of appreciable depth. Nowhere in the patent specification is there any reference to a *deep well*. The drawings, on the contrary, show that the pump is no more than 15 to 20 feet below the surface of the ground. In Figure 10, which shows an unbroken section of the well, if it be assumed that the pump casing is of the ordinary diameter of 12 to 15 inches, then the length of the column 16 is approximately 10 to 12 feet and the pit 15 is some 8 to 10 feet in depth. This estimate is further borne out by the fact that Layne's patent specification says, page 3, lines 9 to 13:

"The screws 65 may be operated by means of a socket wrench placed upon a long rod and reached from the surface of the ground, or may be extended to the surface of the ground as desired."

By referring to Figure 10 of the Layne patent drawings these screws will be seen to be on the same level as the pump 21 itself. Obviously Layne

was not contemplating the use of a screw or wrench "400 to 800 feet long" when he made the foregoing suggestion. What he meant undoubtedly was to send a man down to the bottom of the pit 15 and from there operate the screws or bolts positioned 10 to 12 feet below.

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#### ADJUSTMENT BY WEDGES.

Problem No. 4, the brief says, is:

"How could he vary the length of such pump structure, after installation, in order to raise or lower it according to any variation in the level of the water in the well?"

Obviously, by using his patented "wedge system," which defendants do not employ. The patent specification very clearly says at lines 1 to 10, page 2:

"In order to previously assemble all the parts and then put the pump into the well and fix it in position therein, I provide a system of wedges 33, which serve to fix the pump in place and *hold it in the proper vertical position.*" (Italics ours.)

The court in the Getty case (p. 142) recognized this in saying:

"He accomplished its adjustment to vertical positions in the well hole by suspending the shaft, pump and casing from the top of the well, and by a system of wedges holding the well mechanism in position when adjusted."

**PROTECTION BY STUFFING BOXES.**

Problem No. 5 is stated as follows:

“How could he protect the many necessary bearings for the long pump operating shaft so that the sand and other destructive detritus carried by the water being pumped would not cut out or destroy such bearings?”

The Appellate Court in the Getty case (p. 142) said:

“ . . . However, the specifications of Layne’s patent show that *he relied upon stuffing boxes at the top and bottom of the shaft to effect the closure, and to prevent entrance of water and sand,* to the detriment of the shaft and bearings.” (Italics ours.)

(Note exclusion of *both* “water and sand.”)

Eisler, *supra*, protected his line shaft bearings from sand and detritus by shaft casing and stuffing boxes besides providing for lubrication.

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**ASSEMBLY.**

Problem No. 6 is said to be :

“How could he assemble the bearings and pump shaft in proper relation and maintain the bearings in such relation without the necessity of man descending into the well hole?”

This is done, according to the directions of the patent, by assembling the entire structure on the ground and thereafter lowering the same as a unit into the well. That there can be no doubt as to

this, reference is made to lines 1 to 5, page 2, of the Layne patent, reading as follows:

“In order to previously assemble *all the parts* and then put the pump into the well and fix it in position therein, I provide a system of wedges 33,” etc. (Italics ours),

and again at lines 66 to 69, page 3:

“The whole apparatus being self-contained, can be put together in proper form and lowered into the well *at once*.” (Italics ours.)

Defendants, on the other hand assemble their pump section by section, adding thereto as the sections are lowered into the well. It is obvious that the latter method of assembling the pump has nothing in common with the method proposed in the Layne patent.

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#### ALIGNMENT.

The 7th problem stated in the brief is:

“How could he provide for the alignment of such a long pump shaft in the well?”

There seems to be no great difficulty in supporting a 20 foot shaft in alignment. The *Layne patent specification nowhere refers to the matter of alignment*. Like all of the other pumps of the prior art which were not intended for greater depths than 25 to 35 feet, the problem of shaft alignment was non-existent. Hence, the reason for Layne's failure to make any mention thereof in his patent.



## LUBRICATION.

The 8th and last problem stated in the brief is:

“How could he efficiently lubricate the many bearings required in such a structure?”

Lubrication seems not to have concerned Layne in 1903 to any considerable extent. He has in his specification enumerated *twelve* distinct and different objects and advantages of his invention, and it is to be presumed that in so detailing at great length the *salient* features of his alleged invention he would not be likely to overlook anything of such importance, were it within the contemplation of his scheme. Lubrication is thus disposed of by the patentee (R. 1004, column 2):

“I consider it of great advantage also to arrange the pump shaft in a closed casing with stuffing box at surface of ground at top of pump, so that by the use of the packing boxes an *air-tight chamber* can be maintained, and water kept out of the casing 20, or kept filled with clean liquid, if desired, thereby providing an efficient lubricating system for all bearings of the pump.”

The foregoing quotation is made clear when taken in connection with the following statements found on page 2, lines 83 to 96 (R. 1003), of the Layne patent specification:

“This pipe or tubular shaft 44 also serves the purpose of providing convenient means for forcing the liquid out of the pump shaft casing. By forcing air in at the top of the casing 20 by means of the pipe 52, the liquid can be forced down to the bottom of said casing 20,

and by means of the small opening 45, in the bottom of the tubular shaft 44, the fluid can be forced out at the top 54, and keep the casing clear in order to leave the bearings clean therein and not interfere with the working of the pump, or by forcing fluid in at the top 54, the operation will be reversed, and the fluid ejected from pipe 52."

If, as the brief of plaintiff intimates, Layne's problem was how to lubricate *efficiently* the bearings within the shaft casing then certainly Layne failed to solve this problem by the structure which he shows and describes. This is the lubricating system of Layne which the Court of Appeals for the Fifth Circuit has aptly termed a "stagnant system".

Eisler has an encased line shaft and efficient lubricating means.

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**"GRAVITY FEED" FOREIGN TO LAYNE.**

With such persistence and art has plaintiff in its brief urged that Layne's patented method of lubrication is a "gravity feed" with "downward circulation" from "bearing to bearing," the lubricant finally passing out through the stuffing box 40 into the pump, that it is again necessary to point a warning as to the fallacy of such argument.

For instance, on pages 29-30 of plaintiff's "opening" brief it premises its argument by this statement which is quite correct:

"In Figure 7, the stuffing-box 50 is illustrated as a closure means for the shaft enclosing casing 20 at the top thereof. In Figure 5, a stuffing-box 40 is illustrated as a closure means for the shaft enclosing casing at the bottom thereof."

But then plaintiff continues with this misstatement:

"According to the fact and, as is well known in the world of mechanics, a stuffing-box operates as a bearing and, when used in connection with a high speed rotating shaft, the stuffing material therein cannot be maintained in such close relation with the shaft as to prevent the passage of all liquid between the stuffing and shaft."

1st. The "fact" is lacking.

2nd. A "stuffing box" is not synonymous with a "shaft bearing."

3rd. "Stuffing boxes" are frequently used with high speed, rotating shafts, in various classes of machinery in successfully maintaining perfect closure; e. g., ammonia compressors, where ammonia gas, which, if allowed to escape in only minute quantities, would contaminate the air of the compressor-room and overcome the workmen, and in which apparatus extremely high pressures continually prevail, are in every-day use. Everyone with only a rudimentary knowledge of mechanics knows that a reciprocating shaft is much more difficult to pack against leakage than is a rotating shaft.

Then counsel proceeds (page 30) with this obvious statement of fact (*italics theirs*):

“Like every other type of bearing, the *stuffing must be lubricated or it will heat and burn, thus being destroyed*” (*Italics theirs*),

apparently forgetful that Layne in his patent (preferred form Fig. 1) provides for lubrication by charging his oil chamber within his shaft-enclosing casing with lubricant; thereby *preventing* his packing burning out.

And then comes the conclusion of plaintiff's argument and on which fallacy it builds its whole case (p. 31):

“Therefore, in the Layne patent, the lubricant, fed into the upper end of the shaft enclosing casing, will circulate or flow down through each succeeding bearing therein *and a substantial portion thereof, if not all thereof, will pass through stuffing-box 40 into the pump casing 21.*” (*Italics theirs.*)

We have already seen that the modified form of structure shown in Figs. 10 to 13, and on which structure the claims in issue alone are readable, has not provided *any means* of lubrication. The only form of Layne's device that provides for lubrication is his preferred form of Figs. 1 to 9, inclusive, employing stuffing boxes at top and bottom, and the patent says this stuffing box is to maintain an “air-tight chamber”—a much harder thing to do than to maintain an *oil-tight* chamber. You can keep in *oil* when you cannot keep in *air*! Lubrication of Layne is not a “gravity feed”. In fact, we have shown,

*it would be impossible to lubricate Layne's structure by any gravity system and for the reason that oil is forced in from the bottom and not from the top.*

Plaintiff, however, attributes his theory as to Layne to an alleged finding of "mechanical facts" on the part of the trial Judge. Obviously, the trial Judge did not make any such *finding of facts*. That part of Judge Dietrich's opinion to which plaintiff is referring is conjectural and speculative in the extreme and cannot be termed a finding of "fact". For instance, the statement by the trial court "that perfect mechanical inclosure of the shaft is, of course, unattainable" is not based upon any evidence in the record and is directly contrary to statements contained in the patent in suit and to the well recognized purposes and functions of a stuffing box. The trial court further said:

"It (the shaft) must protrude from the stationary casing to connect with the rotating propeller, at a point where the pressure of the water is the greatest."

Now, it is apparent that the contrary is true, namely, that the pressure, rather than being highest at the center of a centrifugal pump, is lowest. It is elementary that a centrifugal pump creates a suction at the center and a pressure at the periphery; otherwise it will not function as a centrifugal pump. Judge Dietrich's hypothesis overlooks the fact that if Layne's stuffing boxes were loose fitting the action of the pump would be to pump as much oil from above as water from below.

THE LOWER STUFFING BOX 40-41 OF LAYNE DESIGNED TO  
PREVENT CIRCULATION.

Referring to Fig. 5 of the Layne patent in suit, attention is called to the fact that the suction intake 22 is coaxial with the runner 38 and that the discharge column 23 takes off near the periphery of the runner casing. In other words, like in all centrifugal pumps suction is at the center of the runner and the accumulated discharge pressure is at the periphery. Naturally if a suction is applied at the center of the runner so as to suck up water through the pipe 22 into the runner case, it exerts a like suction downward above the runner. If it was not for Layne's stuffing box 41 above the runner the latter under high rotative suction, creating speed, would *draw the oil out of his reservoir tube 20 directly into the runner and mix this oil with the water being pumped!*

Differently expressed, the axis of the runner is the zone of suction of the pump interior, i. e., the two sides of the runner around the hub lie in the zone of vacuum. Hence when the runner is working, suction is applied above as well as below the runner. The same suction or vacuum which lifts the water through 22 from the well would naturally tend to suck the oil out of the inner tube or reservoir tube 20 above the runner *if Layne did not interpose his stuffing box 41. Hence we see the reason for his stuffing box 41, which, of course, is to form a fluid-tight (air-tight, says the patent) barrier between the inside of the tube 20 and any part of the well or pump mechanism.*

Now turning to the defendants' pump and as illustrated in the Halstead patent, and also model Exhibit W, it is observed that the latter has a bottom bearing 17 bridging the discharge or pressure side of the pump represented by the discharge column 9-9a. This pressure in the discharge column is such that ordinarily well water in the discharge space *would force its way up around the unpacked bearing 17* directly into the inner tube 9a and such pressure would be sufficient to cause the tube 9a to fill with the water and force out any oil in it. But by means of the drain tube 28 there is a double circulation of liquid provided for: (1) the downward circulation of the lubricating medium, whether emulsion, oil or grease and out through the tube 28 into the well; and (2) a very brief and short upward circulation of pumped water from the discharge immediately above the runner and below the lower drain tube coupling 17 to the tube 28, where this upward flow is immediately shunted out through the drain tubes into the well. This shunt or discharge under pressure of upward leakage acts like an ejector pump to accelerate the lubricant discharge.

Of course, there is also in Halstead suction applied at the center of his runner, and this suction can at best only extend upwardly through the adjacent pump case bearing; this suction then opening into the discharge column *below the drain tube bearing 17*. Not only is there a total interruption in the suction passage above the runner of Halstead, but even if it continued up as far as the channel 27,

with which the drain tubes 28 connect, the suction would, of course there be broken.

*In short, Layne uses a stuffing box to keep his lubricant in; and Halstead avoids the use of a stuffing box so as to let his lubricant out.*

These differences extend to differences in principle, difference in mode of operation and difference in results of the two devices.

---

**THE "PENDENT" STRUCTURE IS NO PART OF LAYNE'S  
CLAIMS IN SUIT.**

Plaintiff makes much of the fact that the Western Well Works' pump is suspended from the top of the well. There is nothing in any of the adjudicated cases showing that that was a determining factor by itself one way or the other. Pendent pumps in bored wells were old long before Layne.

Mather, British, *supra* (R. 1039), is a centrifugal pump for *bored* wells suspended from the top and *shaft bearings* supported by the discharge column as in Western Well. The patent says (p. 1, lines 17-20):

"Referring first to Fig. 1, *A is the pipe which extends down the bore from a framing B at the top of the well and carries at its lower end the pump C. In the pipe, guided by suitable bearings, revolves the spindle D which drives the blades of the pump.*" (Italics ours.)

Thompson, British (R. 1051), *supra*, is also a *pendent* centrifugal pump, suspended by the dis-



charge column as in Western Well Works, with sectional shaft and intermediate bearings, all adapted for a bored well and *capable of removal from the surface*. (Fig. 3 of Thompson, page 5 of the specification, moreover shows a multi-stage pump of this character.)

In the Western Well construction no part of the "pendent weight" is carried by the shaft-tubing. In fact, the shaft-tubing of defendant could not carry any weight by reason of the slip-joint construction.

Further quoting from the plaintiff's petitioning brief (page 30):

"He conceived the basic idea that such a structure, to be practical and, notwithstanding its great length, be capable of insertion in the small bore of a well, must be built up of many units, so that, *unit by unit*, the structure could be assembled at the mouth of the well bore and, after the addition of each succeeding unit, be lowered a unit length into the well."

This is a plain mis-statement of the disclosure of the patent as already pointed out in answering "Problem six", *supra*. The Layne specification mentions in at least three different places that the structure is *wholly assembled* before any part is inserted in the well, and that it is all lowered "at once." See, *supra*.

In another paragraph plaintiff's counsel states (page 30):

"He appreciated that such a sectionalized structure, made up of as many units as the

depth of the well required, would also necessarily be adapted to be lowered or raised, according to any variation in the level of the water in the well, by simply adding a unit to or subtracting a unit from the structure."

We have already pointed out that there is no basis whatever in the Layne patent for a statement to the effect that Layne contemplated raising or lowering the position of the pump in the well by adding a unit to or subtracting a unit from the structure. What the patent says is this:

"In order to previously assemble all the parts and then put the pump into the well and fix it in position therein I provide a *system of wedges*," etc. (Italics ours.)

Without this wedge system there is no means shown for raising or lowering the position of the pump in the well, and these defendants do not employ wedges nor any equivalent mechanism in their pump. (See also Getty decision.)

Also the brief states (p. 32):

"Mr. Layne also conceived the idea of utilizing this same shaft enclosing casing as a means or *conduit for conveying lubricant* to each of the bearings therein by providing for the feeding of lubricant into the casing above the topmost bearing therein so that such lubricant would, by gravity, circulate or pass down between such bearing and the shaft and between each succeeding bearing and the shaft, thus lubricating all the bearings *in series*." (Italics ours.)

This is an obvious error, since as we have shown there is no provision whatever in Layne for feeding

lubricant into the casing above the topmost bearing. Any lubricant admitted to the shaft enclosing casing in the Layne patent must come in through the pipe 44 under pressure until it gradually fills the said casing to the level of the pipe 52, which latter enters the casing below the topmost bearing. Also as we have pointed out *supra* there is nowhere any reference to feeding lubricant "by gravity," or allowing it to enter the bearings in succession or "series" except in an *upward* direction.

Moreover, in the modified form shown in Figs. 10, *et seq.*, as we have also shown, *no lubrication whatever is provided for.*

Layne's shaft-tubing of Fig. 1 is an oil *receptacle* and not a *conduit*.

---

**PLAINTIFF'S LIBERTIES IN RECONSTRUCTING THE  
CLAIMS IN SUIT.**

After all this disregard for the plain disclosure of the patent drawings and specification, plaintiff's counsel (at pages 33 and 34, petition and brief, and pages 14-15 of their opening brief) reconstruct, or attempt to reconstruct, the very claims in suit so as to expand them from short, concise statements of from 25 to 40 words each into well rounded and all-embracing specifications of upwards of 200 words. For ease in comparison the claims in suit are set out below in parallel columns with the recreated and reconstructed claim which plaintiff's counsel say

"embrace, express and embody Layne's generic invention":

#### CLAIMS OF PATENT IN SUIT

9. In well mechanism the combination with a pump casing, of a rotary pump of a jointed pump shaft and a closed casing surrounding the pump shaft from the pump to the top of the well.

13. The combination with a pump and its actuating shaft of a sectional casing therefor provided at each end of each section with a fixed block with bearings for the shaft, the casing being closed at the top and provided with an air vent.

20. The combination of a well casing, a rotary pump therein, and a line shaft for the pump entirely closed off from the water in the well.

#### PLAINTIFF'S VERSION OF CLAIMS.

(Pages 33 and 34, Petition and Brief, and page 14, Plaintiff's Opening Brief.)

A deep well pump mechanism, adapted to be assembled, *unit by unit*, at the mouth of the well bore and be successively lowered therein *a unit's length* after the addition of each succeeding unit, and, when completely assembled and lowered, to *hang pendent* from the surface like a plumb bob; said mechanism consisting of, in combination:

(1) A pump attached to a sectional line or power shaft extending to the top of the well;

(2) A pump casing enclosing the pump impeller;

(3) A water discharge, sectional casing connected to the pump casing and through which the pumped water passes to the top of the well;

(4) A sectional shaft enclosing casing extending from the pump casing to the top of the well and said shaft enclosing casing being adapted to:

(a) Hold in *alinement* the line shaft by means of suitable bearings fixed

within said casing at appropriate intervals;

- (b) To *protect* the line shaft and its bearings from wear or injury by any sand, grit or other bearing destroying detritus carried by the water being pumped; and
- (c) To form a *conduit for lubricant* from the top of the casing down through each succeeding bearing, including the lowest bearing, thus lubricating all said bearings *in series*.

If plaintiff is under the necessity of so expanding and reconstructing the claims in suit to save them from invalidity and show infringement, then indeed this court is justified in affirming the decree of non-infringement.

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**PLAINTIFF'S MISREPRESENTATION AND MISUSE OF  
THE APPELLATE COURT'S DECISIONS.**

At page 26 of plaintiff's opening brief a partial quotation is given from Judge Morrow's opinion and then a deliberate attempt is made to misinterpret it. The quotation in full as it appears (R. 1127) is as follows:

"We find also that the *combination with a 'pump casing'* mentioned in clause 2 of claim 9, the 'closed casing surrounding the pump

shaft' mentioned in clause 5 of claim 9, the 'sectional casing' mentioned in clause 4 of claim 13, the 'casing being closed at the top' in clause 8 of claim 13, and the 'well casing' of clause 2, claim 20, by which the pump is 'entirely closed off from the water in the well', mentioned in the last two words of clause 4 and in clause 5 of claim 20, perform the same function, the preferred form of which is declared by the specification to be made in joints of any desired length, with stuffing box at surface of ground at top of pump, so that *by the use of the packing-boxes an air-tight chamber can be maintained.*" (Italics ours.)

Plaintiff having quoted a portion of the above says immediately following:

"In said quotation, *three* separate and distinct casings, respectively performing entirely different functions, are spoken of as being *one and the same thing and performing the same function;*"

and then attempts to make it appear that Judge Morrow held that the pump casing first mentioned was one and the same with the other casings mentioned. Judge Morrow said nothing of the sort. He referred to "the combination with a pump casing" of the various elements mentioned and concluded the sentence with the portion we have quoted in full: "that by the use of the packing-boxes an air-tight chamber can be maintained", which changes the sense entirely from what plaintiff disingeniously argue.

Likewise in order to bear out the arguments of non-uniformity of decision plaintiff (page 82 and

elsewhere in its opening brief) deliberately misrepresent the opinions of the Fifth Circuit. For instance they argue non-uniformity with respect to closure claiming that the Fifth Circuit has adjudicated that in *Van Ness* the escape of some oil into the water was unimportant, whereas the Ninth Circuit held that such escape avoided infringement, being one of the main objects to be accomplished.

In regard to this proposition plaintiff mis-states the opinions in that the Fifth Circuit held that the escape of some oil *by reason of defect of apparatus* was unimportant if the means used by Layne for closure were used in the infringing structure, and the Ninth Circuit held that defendant lacking means of closure the escape of the oil *with design* as by ports or drain pipes, avoided infringement.

The Fifth Circuit and Ninth Circuit are not in conflict as to this feature, the Fifth holding in the *Van Ness* case that a difference in degree does not avoid infringement, and in the *Getty* case holding with the Ninth that a difference in purpose and structure to accomplish that purpose would avoid infringement.

Again plaintiff says (page 87 of its opening brief):

"In the first place, the lubricant passes through Layne's shaft casing and from the bottom thereof through the stuffing-box into the pump casing, just as the proofs show and just as the Court of Appeals in the *Van Ness* case, held and just as Judge Dietrich herein found to be the fact."

In this plaintiff's advocates commit triple error:

(1) The patent forbids escape of the lubricant through the stuffing box because the latter, with the other seals of the shaft tubing, renders the latter air-tight as well as oil-tight.

(2) The Van Ness case as further interpreted in the Getty case affords its own defense.

(3) Judge Dietrich's finding on the subject lacks sound basis in the light of the Layne patent.

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**REGARDING TAPERED HUBS AND TIGHT JOINTS.**

Plaintiff, in its brief at pages 108 to 114, attempts to make capital out of the slight alteration in the shape of defendants' hubs. At first the hubs were cylindrical. Later they were tapered slightly to facilitate assembly. That is the only difference if difference it can be termed, besides the helical grooves in the bearings, between the showing of the Halstead patent and defendants' commercial structure. Mr. Conant, who is thoroughly familiar with defendants' installations testified at R. 707 as we pointed out that the tubes and hubs are not uniform in size, but by means of this taper, you can more readily center the tube than if it were straight.

Similar testimony is given by the witness Bradford at R. 712.

Plaintiff's brief at page 37 in discussing Layne's wedge system says:



“These are adjuncts, pure and simple, and Layne refers to the use thereof as being optional (p. 2, line 105.)”

This is a plain misstatement of the language of the patent. The passage in question, namely, page 2, line 105, says:

“The wedge system illustrated for tightening the pump casing in place may also, if desired, be used to center it with respect to the casing.”

Thus, instead of making the “wedge system” *optional*, as claimed by the plaintiff, Layne has emphasized its importance and necessity by pointing out additional advantages.

At page 42 of the brief plaintiff says:

“The uncontradicted proofs show it would be impractical to maintain an air-tight joint between such stuffing and the shaft.”

The only proofs referred to by plaintiff consist of Layne’s expression of opinion that a stuffing box should be lubricated in order to prevent its becoming burnt out. The question before the court is not whether such a joint would or would not be practical. The question is as to what the *Layne patent* shows and describes and the patent very clearly states at lines 74 to 82, page 3, that “by the use of the packing boxes an air-tight chamber can be maintained”. Further contradictory proofs apparently overlooked by plaintiff’s counsel are to be found in the testimony of defendants’ expert, Professor Les-

ley, who, at R. 730, said in describing the mechanism of the Layne patent:

“It is sealed against water at the bottom; it is sealed against oil leaking out; the lubricant may be used for such time as is necessary, until it shall have become spent or worn out, and then that air pressure may be applied to the air pipe, 52, and the oil forced down and into the hole in pipe 44 and upward and out one of the openings that are provided at the top, or that the operation may be reversed, and air may be forced in at the top, thus forcing the oil upward and out of the pipe 52.”

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**RE: HEAVY GREASE.**

At pages 116 to 122 of its Opening Brief plaintiff discusses at great length the use of heavy grease by defendants as if that were a part of Layne's alleged invention and as if it interfered with the circulation of the lubricant in defendants' structure. At page 116 plaintiff argues that defendants, by using a small quantity of heavy grease in the vicinity of each bearing, employs a “stagnant” lubricating system, but at page 118 of the brief plaintiff says:

“As heretofore stated, it is our opinion that it is quite immaterial whether or not a ‘stagnant’ method of lubrication is used. The Layne invention does not reside in any such immaterial feature.”

(But see Getty case, *contra*.)

At page 115 of plaintiff's Opening Brief plaintiff's counsel seeks to give the impression that smearing a shaft for about 30 inches above a bearing would have the effect of completely filling a tube section. Plaintiff quotes the witness Folsom as follows:

"A. We usually only packed the grease *around the shaft before we slipped the tube down*; we used generally about thirty inches on a tube, all we could make stick on, adhere to the shaft, and *then we slipped the tube over.*" (Italics ours.)

Plaintiff neglects to point out that such smearing of heavy grease on a shaft immediately above a bearing comes very far from filling a tube section, which latter, as we have already pointed out is approximately 6 ft., 4 in. in length; the smallest of these tubes being  $2\frac{1}{2}$  in. in diameter (the Anderson Pump having a 3 inch tubing).

Under the heading of Infringement (page 91) plaintiff devotes much space to showing that sand and detritus cannot enter the shaft casing in defendants' pump mechanism. This would seem unnecessary in view of the fact that the Halstead patent, under which defendants are operating, clearly states that the joints of the shaft enclosing casing are *tight enough to exclude sand and detritus although preferably loose enough to admit clear water*. The admission of water is only economical and helpful to aid in lubrication, mixing as it does with defendants' emulsifying oil.

And still plaintiff's counsel in the face of the foregoing say, at top of page 136 of their brief:

"In other words, closure at the bottom of the conduit must be sufficient to protect the shaft bearings from the destructive action of detritus. *But such bottom closure is immaterial as a feature of lubrication.* When the lubricant reaches the bottom of the casing, it has completed its lubricating function." (Italics theirs.)

And then they proceed on the same page to make this mis-statement of evident fact:

"In the Layne structure, lubricant likewise passes out of the bottom of the casing."

Such misrepresentations occur so repeatedly throughout the brief that it becomes well nigh futile to try and meet each and all of them.

---

#### INFRINGEMENT.

It would seem that little needs to be added to show conclusively the lack of infringement by the defendants.

---

#### AS TO CLAIM 13.

No proof whatsoever has been offered to show that the defendants have the combination of claim 13. In fact, any so-called proof to that end would be futile, because it is obvious that the defendants' shaft tubing is not "provided with an air vent," even if it should be assumed that said tubing or

shaft casing is "closed at the top" or "provided at each end of each section with a *fixed block*" or any block.

Such proof on the part of plaintiff as may have been offered and deemed applicable to claims 9 and 20 falls far short of establishing infringement.

Plaintiff, at page 28 of its main brief, and page 33 of its petitioning brief, under the heading Lubrication, argues that pipe 44 of the Layne patent merely serves the same purpose as a vent in a five-gallon coal-oil can. As is well known, a vent in an oil can acts passively to admit air for the purpose of filling the space made vacant by the diminishing oil. Layne's patent specification, on the other hand, says, concerning the so-called air vent:

"This pipe or tubular shaft 44 also serves the purpose of providing convenient means for *forcing* the liquid out of the pump shaft casing. By *forcing* air in at the top of the casing 20, by means of the pipe 52, the liquid can be forced down to the bottom of said casing 20, and by means of the small opening 45, in the bottom of the tubular shaft 44, the fluid can be *forced* out at the top 54, and keep the casing clear in order to leave the bearings clean therein and not interfere with the working of the pump, or by *forcing* fluid in at the top 54, the operation will be reversed, and the fluid ejected from pipe 52." (Patent lines 83-96, page 2.)

Throughout the foregoing the idea of *forcefully* ejecting air or liquid is stressed.

This idea was voiced in the Van Ness case where the court said (213 Fed. 805):

"One function of this air vent is to *force* any water or spent lubricant remaining in the casing, out of it, through an aperture in the top, by *forcing* air through the air vent into the casing, for the purpose of substituting clean liquid or oil." (Italics ours.)

Moreover, the pipe 44 is shown as being closed at its top by means of a valve or plug 54 from which it is obvious that Layne's idea was a stagnant system of lubrication, just as the Circuit Court of Appeals for the Fifth Circuit held in the case of *Layne vs. Getty*, 262 Fed. 141.

As said by this court in *Underwood v. Gerber*, 149 U. S. 225, 37 L. Ed. 710, at page 713:

"In *Miller v. Bridgeport Brass Co.*, 104 U. S. 350, 352 (26: 783, 784) it is said: 'The claim of a specific device or combination, and an omission to claim other devices or combinations apparent on the face of the patent, are in law, a dedication to the public of that which is not claimed. It is a declaration that that which is not claimed is either not the patentee's invention, or, if his, he dedicates it to the public.'

"In *Mahn v. Harwood*, 112 U. S. 354, 360 361 (28: 665, 667, 668), it is said: 'The taking out of a patent which has (as the law requires it to have) a specific claim, is notice to all the world, of the most public and solemn kind, that all those parts of the art, machine, or manufacture set out and described in the specification, and not embraced in such specific claim, are not claimed by the patentee—at least, not claimed in and by that patent. . . . So far as that patent is concerned, the claim actually made operates in law as a disclaimer of what is not claimed.' "

## SUMMARY.

(1) A careful consideration of the prior art represented by the Byron Jackson prior invention and the patents to Eisler, Crannell and Alvord, points, we submit, to a finding of invalidity against the Layne patent.

(2) If Layne is valid at all it covers an invention of a low order and the claims must be construed narrowly.

(3) The File Wrapper shows that Layne was obliged to distinguish his mechanism from that shown in the prior art, especially the patent to Crannell, and to accomplish this he emphasizes not only the effectual closure to provide a stagnant oil system, but the *vents* and *blow off* means to evacuate the spent oil and the "wedges" for aligning and centering the pump; none of which constructions or devices enters at all into the defendants' structure.

(4) Layne has abandoned his patented construction for the reason that it was a commercial failure. A patent is granted for solving a problem, not for stating one. (Columbia Motor Car Co. vs. Duerr, 184 Fed. 893 (Selden Patent).)

"It is one thing to invent the theory of a machine. It is quite another thing to invent a successfully operating machine."

Raisin Seeder Case, 182 Fed. 59, 62.

We anticipate there will be no disagreement of this court with the Appellate Court for the Fifth Circuit on the following self-evident propositions:

(1) That claims 9 and 20 are substantially alike, differing merely in degree.

(2) That a "stuffing box" is a physical closure whereby Layne entirely "closed off the water in the well" from his lubricating chamber around the pump shaft.

(3) That the Layne system of lubrication, resulting from such isolation of the oil chamber from the outside water created essentially a "stagnant" system of lubrication.

(4) That this idea of "stagnation" is confirmed by the use of the blow-off pipes and vent employed in Layne and strikingly absent both in Getty and Western Well Works.

(5) That there is a recognized distinction in the principle of operation between a "stagnant" system of lubrication and a "circulatory" system of lubrication.

(6) That this difference in principle being recognized, the conclusion of non-infringement becomes a necessary deduction.

We submit that the petition should be dismissed and the decree of the Circuit Court of Appeals of the Ninth Circuit affirmed.

Respectfully submitted,

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WM. A. LOFTUS,

*Attorneys for Respondents.*

Dated, February....., 1923.





FILED

MAR 10 1922

WM. R. STANSBURY

CLERK

IN THE

**SUPREME COURT OF THE UNITED STATES**

**OCTOBER TERM, 1921.**

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**No. 774. 278**

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LAYNE & BOWLER CORPORATION, PETITIONER,

*vs.*

WESTERN WELL WORKS, INC. (A CORPORATION), RO-  
TARY DRILLING AND DEVELOPMENT COMPANY  
(A CORPORATION), STANLEY M. HALSTEAD, P. E.  
VAUGHAN, AND ALLEN W. ROSS, RESPONDENTS.

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ON PETITION FOR WRIT OF CERTIORARI TO BE ADDRESSED TO  
THE JUDGES OF THE UNITED STATES CIRCUIT COURT OF  
APPEALS FOR THE NINTH CIRCUIT.

---

**BRIEF ON BEHALF OF RESPONDENTS.**

---

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**BRIEF ON BEHALF OF RESPONDENTS.**

---

The petition for writ of certiorari in this cause appears  
(page 3) to be based upon the sole ground that—

“The said decision herein of the Circuit Court of  
Appeals for the Ninth Circuit, in respect to the ‘mode

of operation' of Layne's mechanism and the construction and scope of his patent claims, is in direct conflict with the decisions of the Circuit Court of Appeals for the Fifth Circuit in the following cases involving the infringement of the same Layne patent No. 821,653 sued on herein, to wit:

"El Campo Machine Co. *vs.* Layne, 195 Fed. 83;

"Van Ness *vs.* Layne, 213 Fed., 804;

"Getty *vs.* Layne, 262 Fed., 141."

In denying the validity of this ground respondents point out that the Layne patent referred to in the petition was held valid and infringed by the Circuit Court of Appeals for the Fifth Circuit in the two cases first mentioned, to wit *El Campo Machine Co. vs. Layne*, 195 Fed., 83 (claim 1 only), and *Van Ness vs. Layne*, 213 Fed., 804 (claim 1 only). In the third case referred to, namely, *Getty vs. Layne*, 262 Fed., 141, the same court held the said patent valid but *not* infringed, there being a different structure involved from that sued upon in the first two cases.

The present petition is directed against the decision of the Circuit Court of Appeals for the Ninth Circuit in the case of *Western Well Works vs. Layne & Bowler Corporation*, 276 Fed., 465 (R., 1122-1148), wherein that court adopting the views last expressed by the Circuit Court of Appeals for the Fifth Circuit, found the said Layne patent valid but not infringed. In so ruling the Circuit Court of Appeals for the Ninth Circuit gave due recognition to prior litigation and to the conclusions of the Circuit Court of Appeals for the Fifth Circuit.

### Decisions of Fifth and Ninth Circuits are in Complete Harmony as to Validity of Layne Patent.

As a matter of fact, therefore, all of the decisions affecting the Layne patent have been uniform in holding said patent valid. The same court which found infringement in two cases, but of different claims in each case, found non-infringement in a third and later case where a different structure was involved and at a time when the court had acquired greater familiarity with the scope and meaning of the Layne patent.

The Circuit Court of Appeals for the Ninth Circuit in the instant cause, with the records of all prior suits before it, found validity and non-infringement in harmony with the findings of the Fifth Circuit of the Court of Appeals. This is clearly shown by the following quotation from the opinion of the court, *Western Well Works vs. Layne & Bowler Corporation*, 276 Fed., 470, 472, (R., 1133):

"In *Getty vs. Layne* (C. C. A.), 262 Fed., 141, the court followed its decisions in the previous cases, determining the question of the validity of the patent in favor of the plaintiff, but the court held that the patent was not entitled to the wide range of equivalents of a pioneer patent."

That this is a correct statement we have only to note the following from the Circuit Court of Appeals for the Fifth Circuit in the *Getty* case, 262 Fed., 143:

"The Layne patent too nearly resembles the Crannell patent to be called a pioneer. \* \* \* Its advance over Crannell prevented Crannell from being considered by us an anticipation, and was *enough to show novelty, but it stops there.*" (Italics ours.)

The Ninth Circuit in the case under consideration gives its stamp of approval to validity of the Layne patent where it is said (R., 1136):

"We are of the opinion that there is invention in the entirely closed casing of the Layne patent as claimed in claims 9, 13, and 20, particularly claim 20, functioning as it does in complete protection to the line shaft from the ingress of water and sand and in protecting the means for lubrication."

### **Layne's Invention is of Narrow Scope.**

Petitioner attempts by the use of incomplete and partial quotations taken from various opinions and, we submit, misstatements of opinions, including opinions of the trial courts and minority opinions of the Circuit Court of Appeals, to show that the Layne invention was of a broad character. But the opinions of the Circuit Courts of Appeals for the Fifth and Ninth Circuits are in full accord as to the *narrowness* of the Layne patent.

*El Campo Case:* The Circuit Court of Appeals for the Fifth Circuit in the Van Ness case, 213 Fed., 805, interpreted the construction put on the Layne patent in the El Campo case thus:

"In the El Campo case, 195 Fed., 83; 115 C. C. A., 115, the court held the patent valid as to claim 13, and that that claim had been infringed. As we understand, the validity of claims 4, 9 and 20 were not passed upon by the court, but were held not to have been infringed. In the present case we are satisfied that claim 13 is not infringed by the Van Ness pump. The last clause of claim 13 reads, 'the casing being



closed at the top and provided with an air vent.' While the Van Ness pump is closed at the top, it is not contended that the pump has an air vent such as the patented pump had and such as the El Campo pump had. One function of this air vent is to force any water or spent lubricant remaining in the casing, out of it, through an aperture in the top, by forcing air through the air vent into the casing, for the purpose of substituting clean liquid or oil. It seems clear that the Van Ness pump had no such member with a corresponding function as the air vent of the patented pump, or that of the El Campo pump, and so cannot be said to infringe claim 13. This, if correct, would prevent complainant from relying upon claim 13 in this case, as a ground of recovery."

*Van Ness Case:* Further, in the Van Ness case, at pages 807 and 808, the court says:

"Giving claim 20 this interpretation (that is, construing the words 'line shaft' as referring only to the part of the pump shaft which alone can be enclosed in practice), it seems that it is substantially like claim 9, except in the omission of the element of jointure or extensibility of the shaft sections, which adds nothing to the novelty and patentability of the device; and that the element common to each claim, viz., the protective or closed casing surrounding the pump shaft from the pump to the top of the well and entirely closing off the water in the well from the shaft and its bearings, is the only element in any one of the claims as to which there is persuasive evidence in the record both as to patentability and infringement."

Continuing, the court says:

"The word 'closed' in claim 9 seems to mean as much as the words 'entirely closed' in claim 20."

\* \* \*

"It seems quite clear that the idea of a protected casing for a pump shaft without restrictive interpretation would contain no novelty and would not be patentable, and, if this element in the patent is given the unrestricted meaning that its language admits of, it would destroy the claim." \* \* \*

\* \* \* "It also seems fairly to appear from the record that such a protective casing as that set out in the specifications contained novelty enough to constitute invention."

And at page 809:

\* \* \* "It seems that the question of infringement, like that of patentability, is a *close one*." (Italics ours.)

The opinion in the Van Ness case leaves the character of the Van Ness structure in doubt, but by referring to the Getty case (262 Fed., 141, 144) we find that Van Ness used "thrust bearings and a collar to help close the bottom of the shaft casing."

We are further aided in connection with this matter by reference to the opinion of the District Court in the Getty case, wherein Judge Jack, speaking for the court, said (R., 1011):

"There is this difference between the Van Ness and the Getty apparatus. In the former the weight of the shaft is largely sustained by a thrust bearing near the bottom of the casing, so that the pressure on the thrust bearing would tend to make the casing nearer waterproof. In the Getty apparatus, which rests on the bottom of the well, there are no thrust bearings, but all the bearings are of the ordinary kind, so that, as argued by counsel, more water would pass into the shaft casing of the Getty pump than into that of the Van Ness pump."

We thus see at the Van Ness stage of the litigation that the court appreciated the mechanical closure means of Layne that were essential at the bottom of the shaft tubing to make anything like a "closed casing." In Layne, as the court says, "the closure in the patented casing is effected by stuffing-boxes;" and in Van Ness it was effected by "thrust bearings and a collar to help close the bottom of the shaft casing." The importance of "mechanical closure" is emphasized in the Getty case, as we will see.

*The Getty Case:* The Getty case first came before the Circuit Court of Appeals (222 Fed., 917) on appeal by the plaintiff against the refusal of the lower court to grant a preliminary injunction based on the prior adjudication in the Van Ness case, the court saying (page 918):

"A hearing was had upon the motion for a preliminary injunction, based upon *ex parte* affidavits, and the injunction was refused. To review this order the appellants have brought the case to this court.

"Claim 20, sustained as valid by this court in Van Ness *vs.* Layne, 213 Fed., 804; 130 C. C. A., 462, is the only claim of the patent involved in the present controversy. As before stated, the hearing before the District Judge was had upon mere *ex parte* affidavits. Appellee denied that his improvement infringed claim 20 of appellants' patent, and it is apparent from an examination of the contradictory affidavits that the question of infringement *vel non* is left in considerable doubt."

The court held that there had not been an abuse of discretion and denied plaintiff's motion. This in itself did not speak a high regard for the Layne patent in the mind of the Court of Appeals.

In 262 Fed., 141, the case, after final hearing, came again before the court for review following Judge Jack's decision sustaining the patent and adjudging infringement against his own better judgment, the attitude of Judge Jack being indicated by the following excerpt from his opinion in referring to the argument that there was no invention over Crannell in interposing intermediate bearings and oiling by simply letting the oil run down from bearing to bearing, as would occur to anyone, and had always been the method of oiling vertical shafts (R., 1011):

"The court is much impressed with this argument. The insertion of additional bearings to prevent whipping of the shaft where the distance between bearings is too great, is as simple and natural a thing to do as the putting in a fence of extra posts to prevent sagging of a barbed wire, where the posts of the panels are too far apart. *Were the question a new one, I should be inclined to hold the patent invalid*, but the same issue was raised and directly passed on by this court and by the Court of Appeals for the circuit in the Van Ness case sustaining the patent." (Italics ours.)

The Court of Appeals in the Getty case (262 Fed., 142), in construing claim 20, said:

"The twentieth claim of the patent—that sustained in the case of Van Ness *vs.* Layne, *supra*—covered 'the combination of a well casing, a rotary pump therein, and a line shaft for the pump *entirely closed off from the water in the well.*' \* \* \* *It was only by giving the claim this restricted meaning, and limiting it to the description in the specifications that the claim could be sustained.*" (The italics of the last sentence are ours; the first italics are the court's.)

Continuing, the court said, page 143:

"The Layne patent *too nearly resembles the Crannell patent to be called a pioneer patent*, though it did accomplish a revolution in the well-drilling industry. Its merit was in adapting the Crannell type of pump to a narrow and deep well hole in a way that has been held by us to exhibit novelty. While the substitution of mere mechanical equivalents for the means adopted by Layne could not avoid infringement of his patent, it is also true that the range of equivalents cannot be enlarged upon the idea that his patent was a pioneer one in the pump art. *Its advance over Crannell prevented Crannell from being considered by us an anticipation, and was enough to show novelty but it stops there.* The Layne patent must rest, not upon the idea of closure, which would not be patentable apart from the method by which it was accomplished, but upon the means of its accomplishment, as disclosed by the specifications of his patent." (Italics ours.)

Similarly, the Circuit Court of Appeals for the Ninth Circuit in its decision in the case now sought to be brought here for review, says that (Rec., 1131):

"We have placed some emphasis upon the fact that all the claims in this patent relate to one principal operative invention of a well mechanism, and in that relation they all in a more or less direct and practical way were designed to co-operate and supplement each other to the common intent and purpose of being employed in an operating pump apparatus for a driven or artesian well; but when we turn to the analysis of the claims in suit, we find that the essential elements claimed to have been infringed are limited and narrow and relate only to the combinations of a

rotary pump with an actuating shaft entirely closed off from the water in the well by the casing surrounding the pump shaft."

Quite obviously, both courts agree that to impart validity to the Layne patent and to the particular claims sued upon due regard must be paid to the mechanism disclosed in the drawings and specification of the patent. This is a well-settled principle of patent law.

Moreover, it is self-evident in the Getty case the court was favorably inclined to resolve the *doubt* as to validity in favor of Layne, based on alleged commercial success. In the instant case the court also resolves in favor of Layne, and thus there is full accord between the courts of these two circuits.

#### **Holding of Non-Infringement by Fifth and Ninth Circuits Also in Harmony.**

The Court of Appeals for the Fifth Circuit, in finding non-infringement in the case of Getty *vs.* Layne, *supra*, said, at page 143:

"Layne's method of lubrication was to put the oil in at the top and to permit it to descend to each of the bearings, and remain stagnant within the shaft casing until ejected from the top after it had become spent by air pressure through an air vent. When it was ejected, it was replaced by clean oil from the top again. On the other hand, the oil was confined at the bottom of the well by use of a packing or stuffing box. Getty adopted a circulatory system of lubrication. By it the oil was also introduced from the top, and descended to the lower bearings by gravity.

However, at the bottom there was only a partial obstruction to its exit, presented by a long sleeve bearing. Its passage out from the shaft casing was automatic and continuous, so that there was a constant and free flow of lubricant from the top of the line shaft, throughout its length, and out through its bottom. This method was claimed to be necessary to Getty's device, because wear on the upper bearing required a continuous supply of fresh oil for its proper lubrication. These functional differences between the stagnant and circulatory systems of lubrication prevent their being considered as merely mechanical equivalents."

And at page 144:

"We think Getty has accomplished closure and lubrication by means so functionally different from Layne's disclosure in his patent that they cannot be said to be mere mechanical equivalents, but rather distinct methods of attaining the same object; the object itself not being patentable."

The Circuit Court of Appeals for the Ninth Circuit in finding non-infringement in the instant case quoted verbatim the above language (page 143) from the opinion in the Getty case (see R., 1135) and concluded (R., 1136):

"The difference between the Layne patent and the Getty mechanism, as it appears in *Getty vs. Layne*, *supra*, is essentially the difference between the Layne patent and the defendants' mechanism in this case."

**Alleged Conflict Between Majority Opinions of Circuit Courts of Appeals for Fifth and Ninth Circuits, on the One Hand, and Opinion of the Trial Judge and Dissenting Opinion of Judge Gilbert, on the Other Hand.**

Petitioner elsewhere in its petition (page 11) urges the following unusual ground as further showing an alleged conflict in the decisions of the courts affecting the Layne patent:

"In respect to the construction and scope of the three Layne patent claims, involved herein, there is also a direct conflict between the decisions respectively rendered by said two Circuit Courts of Appeals and between the views of said two judges rendering the decision herein of the Circuit Court of Appeals and the views respectively expressed by Judge Gilbert in his dissenting opinion and by Judge Dietrich in rendering the District Court's decision herein."

In answer to this it is only necessary to point out that inasmuch as the decision of the trial judge and the minority opinion of Judge Gilbert did not prevail, they do not give rise to a conflict, nor in anywise affect the legal scope or status of the Layne patent. Moreover, the differences between the judges of the Ninth Circuit were not as to matters of law, but the usual differences as to their respective understandings of the facts. Manifestly, there is no question as to the qualifications of the judges who heard the cause in the appellate court. We do not understand it to be the accepted practice of this court to grant the writ of certiorari to review a patent cause where the judgment of the Circuit Court of Appeals complained of depends solely upon that



court's appreciation of the testimony of witnesses called by the respective parties, nor where the application for the writ is based solely upon the alleged erroneous conclusion of the Circuit Court of Appeals in matters of fact.

**Petitioner's Brief Devoted Almost Wholly to Immaterial Matters.**

Pages 28 to 54 of petitioner's brief, or more than one-half of the entire brief and argument of petitioner, are copied verbatim from the brief filed by petitioner at the final hearing in the case of *Western Well Works vs. Layne & Bowler Corporation*, *supra*. All of this matter has to do with petitioner's theories as to the scope of the Layne patent and its contentions as to the question of infringement by respondent. Obviously, such arguments can have no bearing upon the question at issue, namely, whether or not the Circuit Courts of Appeals for the Fifth and Ninth Circuits are in conflict as to the nature of Layne's alleged monopoly. From this it would seem a logical conclusion that petitioner has nothing to urge in the way of special grounds for granting a writ of certiorari, but, on the contrary, is compelled to resort to arguments which would be proper only in case the writ were granted and the entire record were before this court for review.

**Conclusion.**

That this is not a proper case for the issuance of the writ of certiorari from this Honorable Court is apparent from a mere reading of the decisions of the Court of Appeals for the Fifth Circuit and the Court of Appeals for the Ninth Circuit. In each instance the court held the patent valid.

The decisions of the two jurisdictions, therefore, are in complete uniformity on that subject.

When Judge Morrow, for the Ninth Circuit, finds non-infringement because the defendant in the present suit employed a "circulatory system" of lubrication against the use by the patented device of a "stagnant system" of lubrication, he, speaking for the majority of the court, followed the previous findings of the Court of Appeals for the Fifth Circuit, so that again we have uniformity.

There is no constitutional question involved, nor any important question of general law, much less any question of general law with respect to which there is a lack of uniformity. As has been said elsewhere:

"A Supreme Court, where there are intermediate courts of appeal, is not a tribunal constituted to secure, as its ultimate end, justice to the immediate parties. They have had all that they have a right to claim when they have had two courts in which to have adjudicated their controversy. The use of the Supreme Court is merely to maintain uniformity of decision for the various courts of appeal, to pass on constitutional and other important questions for the purpose of making the law clearer for the general public. Litigants, therefore, cannot complain where they have had their two chances that there should be reserved to the discretion of the Supreme Court to say whether the issue between them is of sufficient importance to justify a hearing of it in the Supreme Court."

Nothing could more aptly express the situation existing between the present parties. They have each had their day

in court and the final judgment passed by the appellate court in accordance with justice and common sense. There is no question of lack of uniformity of decision between the various courts of appeal, and there are no constitutional or other important questions which can be made any clearer than they are now.

For the reasons stated, and because of others which very readily suggest themselves to the Court, it is respectfully submitted the instant petition for certiorari should be denied.

Respectfully submitted,

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*Attorneys for Respondents.*



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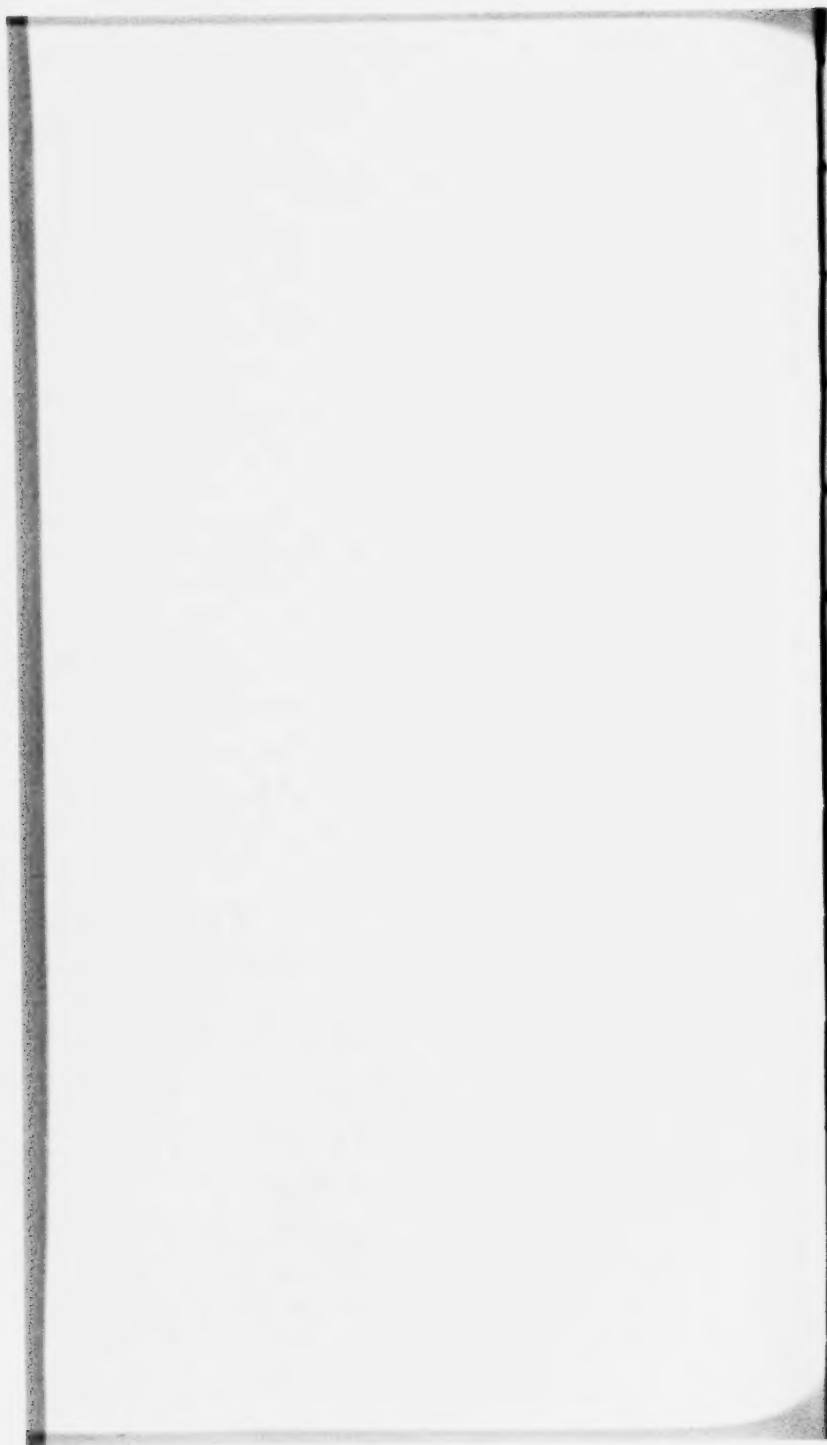
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# In the Supreme Court

OF THE  
UNITED STATES

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LAYNE & BOWLER CORPORA-  
TION,

*Petitioner-Plaintiff,*

vs.

WESTERN WELL WORKS, INC. (a  
corporation), ROTARY DRILLING  
AND DEVELOPMENT COM-  
PANY (a corporation), STANLEY  
M. HALSTEAD, P. E. VAUGHAN  
and ALLEN W. ROSS,

*Respondents-Defendants.*

---

PETITION FOR WRIT OF CERTIORARI TO BE  
ADDRESSED TO THE JUDGES OF THE UNITED  
STATES CIRCUIT COURT OF APPEALS FOR  
THE NINTH CIRCUIT

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*To the Honorable, the Chief Justice and Associate  
Justices of the Supreme Court of the United  
States:*

Your petitioner respectfully shows:

On December 31, 1920, after a trial in open Court  
before his Honor, District Judge Frank S. Dietrich,

of Idaho, sitting in the United States District Court for the Southern Division of the Northern District of California, there was made and entered herein an interlocutory decree adjudging valid and infringed Claims 9, 13 and 20 of petitioner's United States letters patent No. 821,653 issued on May 29, 1906, to Mahlon E. Layne for "Well Mechanism" (R. 896). The District Court's opinion appears at page 887 of the Record.

On October 17, 1921, the said decree was reversed by the United States Circuit Court of Appeals for the Ninth Circuit which found petitioner's said letters patent valid *but not infringed* by respondents' well mechanism (R. 1152).

The opinion, of the Circuit Court of Appeals, was written by his Honor, Circuit Judge William W. Morrow and concurred in by his Honor, District Judge Charles E. Wolverton, sitting in the Circuit Court of Appeals in the place of one of the Circuit Judges for the Ninth Circuit (R. 1121).

His Honor, Circuit Judge William B. Gilbert, wrote a dissenting opinion and therein affirmed the correctness of the District Court's decree finding infringement (R. 1149).

It thus appears that District Judge Dietrich, the trial Judge, and Circuit Judge Gilbert found petitioner's patent infringed by respondents' structure, whereas Circuit Judge Morrow and District Judge Wolverton found to the contrary.

On January 16, 1922, petitioner's Petition for a



Rehearing was denied by the Circuit Court of Appeals, Circuit Judge Gilbert dissenting (R. 1153).

*The said decision herein of the Circuit Court of Appeals for the Ninth Circuit, in respect to the "mode of operation" of Layne's mechanism and the construction and scope of his patent claims, is in direct conflict with the decisions of the Circuit Court of Appeals for the Fifth Circuit in the following cases involving the infringement of the same Layne patent No. 821,053 sued on herein, to wit:*

*El Campo Machine Co. vs. Layne*, 195 Fed., 83;

*Van Ness vs. Layne*, 213 Fed., 804;

*Getty vs. Layne*, 262 Fed., 141.

Following the decision in the Van Ness case, *supra*, the Circuit Court of Appeals for the Eighth Circuit held the Layne patent valid and infringed in the case of *Layne vs. United Well Works*.

The following cases, brought for the infringement of said Layne patent, are now pending, to wit:

*Layne & Bowler Company vs. American Well Works, of Aurora, Illinois*, pending in the District Court for the Northern District of Illinois;

*Layne & Bowler Corporation vs. American Well & Prospecting Company, et al.*, pending in the District Court for the Southern District of California;

*Layne & Bowler Corporation vs. Byron Jackson*

*Iron Works*, pending in the District Court for the Northern District of California; and

*Layne & Bowler Corporation vs. Krogh Manufacturing Company*, pending in the District Court for the Northern District of California.

The *broad scope and fundamental nature* of the Layne invention and its *revolutionary* effect on the deep well pump industry throughout the country, are indicated by the following findings of fact respectively announced by the various Courts in deciding some of the above cases involving the Layne patent, it being understood all italics herein may be deemed petitioner's.

In the Van Ness case, *supra*, the Court of Appeals for the Fifth Circuit said:

"The fact that the record shows that there was for some time an unfilled want for some such apparatus as that disclosed by the patent in the deep well irrigating industry is persuasive that the idea involved invention. In this respect the cross examination of the witness, W. B. St. John, a witness for the defendant, . . . is convincing that Layne filled a *long-felt need* in the deep well irrigating business by his *protective casing*, and had invented a practicable and valuable improvement in that art and one entitled to protection for that reason. . . ."

In the *Getty* case, the same Court of Appeals said:

"The Layne patent . . . did accomplish a revolution in the well-drilling industry."

In the case at bar, Judge Dietrich, the trial Judge, in respect to said Layne patent, said:

"Though not, strictly speaking, a pioneer, the patent is of a *fundamental, generic* character, and in expressing his conception in physical form the patentee is entitled to a reasonable range of mechanical equivalents." (R. 891.)

In his dissenting opinion herein, his Honor, Circuit Judge Gilbert, in affirming the correctness of Judge Dietrich's findings herein, said:

"There can be no doubt that the appellee's invention did, as was said in the case of *Getty vs. Layne*, 262 Fed., 141, '*accomplish a revolution in the well-drilling industry.*' And while the invention may not be said to be of a pioneer character, it is, nevertheless, an invention of such merit as to be entitled to protection against a reasonable range of mechanical equivalents." (R. 1149.)

In order to point out, at this time, *the conflict between the decision herein and the decisions of the Circuit Court of Appeals for the Fifth Circuit, in the above mentioned cases involving this Layne patent*, it is necessary to give a brief description of the mechanism embodying the Layne invention. A more elaborate description thereof will be found in the annexed brief.

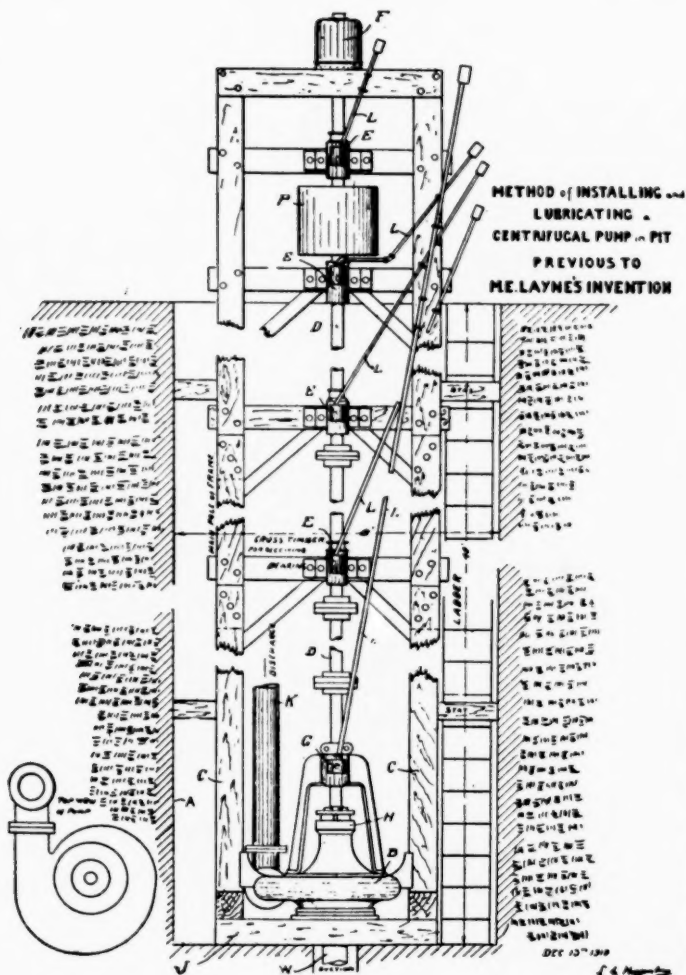
Prior to the introduction of Layne's revolutionary invention, the general type of pump installation was one involving the digging of an open pit and the mounting of the pump *on the bottom of the pit*.

Such a pit construction is illustrated in "Plaintiff's Exhibit No. 2" (R. 915) reproduced on the opposite page.

To obviate all the disadvantages inherent in such a pit construction, and in order to make possible and practical the boring of wells of great depth and the pumping of water therefrom, Mr. Layne invented his deep well pump mechanism, adapted to be assembled, *unit by unit*, at the mouth of the well bore and be successively lowered therein *a unit's length* after the addition of each succeeding unit and, when completely assembled and lowered, to *hang pendant* from the surface, like a plumb bob; said mechanism consisting of, in combination:

- (1) A *pump* attached to a *sectional line or power shaft* extending to the top of the well;
- (2) A *pump casing* enclosing the pump impeller;
- (3) A *water discharge, sectional casing* connected to the pump casing and through which the pumped water passes to the top of the well;
- (4) A *sectional shaft enclosing casing* extending from the pump casing to the top of the well and said *shaft enclosing casing* being adapted to:
  - (a) hold in *alinement* the line shaft by means of suitable *bearings* fixed within said casing at appropriate intervals;
  - (b) to *protect* the line shaft and its bearings

**Plaintiff's Exhibit No. 2.**



from wear or injury by any sand, grit or other bearing destroying detritus carried by the water being pumped; and

- (c) to form a *conduit for lubricant* from the top of the casing down through each succeeding bearing, including the lowest bearing, thus lubricating all said bearings *in series*.

To install such a structure, the *first unit*, embracing (a) the pump impeller casing, (b) the pump impeller therein, (c) a section of water discharge casing, (d) a section of shaft attached to the pump impeller and (e) a section of shaft enclosing casing (having therein a shaft bearing) would be *assembled on the ground*, inserted in the well bore and *held adjacent the mouth thereof* so that the second unit (embracing a section of water discharge casing, a section of shaft and a section of shaft enclosing casing, having therein a shaft bearing), could be joined to the *first unit*, whereupon such two units would be lowered about an unit's length into the well bore and *there held* until the addition of a *third unit* identical with the *second unit*. The successive additions of units, like the second unit, would then proceed until the desired length of structure had been assembled and lowered and the pump be at the desired depth in the well bore, whereupon the whole structure would remain *supported from the top of the well*, hang pendant therein and function properly, *all without the neces-*

*sity of man entering the well either to install, operate or repair the structure.*

It is to be noted that, in such pump structure, the sectional line or power shaft (connecting the pump impeller with the power means on the surface of the ground) is enclosed in a *casing* which performs three distinct functions in reference to (a) *alinement*, (b) protection and (c) lubrication.

In such shaft enclosing casing, shaft bearings, at regular intervals, are mounted. An inspection of the figures of the Layne patent drawings, reproduced on the opposite page, shows that such shaft casing is supported at the top of the well and that it is an *integral* part of the *means* for supporting and suspending every other part of the apparatus located below the top of the well.

In other words, the shaft casing and the water discharge casing form an integral structure, which is supported at the top of the well and, therefore, by reason of gravity, said casings hang in a vertical plane. As the shaft bearings are mounted in the shaft casing, said bearings necessarily are held in vertical alinement. As the shaft passes through such vertically alined bearings it, too, must be held in a vertical line.

Thus, such shaft enclosing casing performs the function of alining the shaft bearings and thereby alining the shaft passing through such bearings. As said by the Circuit Court of Appeals for the Fifth Circuit in the *Van Ness* case:

"The third function performed by the shaft casing of the (Layne) patent in suit is that of *aligning* the bearings and the pump shaft so as to keep the latter in a vertical position in the well."

Such alinement function, of the shaft casing, is a most important and vital one and is one of the features or attributes of Layne's revolutionary invention which distinguishes and differentiates it from all prior art structures.

Judge Dietrich, in the District Court, also found that Layne's shaft enclosing casing performed such alining function. In his opinion herein, he said:

"An essential part of the main problem was to provide bearings to hold the driving shaft in alignment together with means for lubricating them and keeping them free from the sand more or less generally carried in the water. In the inventor's conception, *these three functions were to be performed by the shaft casing.*" (R. 890.)

In his dissenting opinion herein, Judge Gilbert affirmed the correctness of the District Court's said finding which is consistent with that of the Circuit Court of Appeals for the Fifth Circuit in the *Van Ness* and *Getty* cases, *supra*.

*In direct conflict* with the aforesaid respective findings of the Circuit Court of Appeals for the Fifth Circuit and of Judge Dietrich and of Judge Gilbert herein, is the finding herein of Judge Morrow, concurred in by District Judge Wolverton.

The *conflicting* finding herein is expressed by Judge Morrow in the following language:



"It seems clear to us that the alignment is *not* a function of the shaft casing, . . . (R. 1130.) Our conclusion is that the shaft casing has only *two* functions: (1) To protect the shaft and its bearings from the water and sand pumped to the surface, and (2) to enclose the means provided for lubrication of the shaft bearings." (R. 1133.)

The said *conflict*, between the Circuit Court of Appeals' decision herein and the decisions of the Circuit Court of Appeals for the Fifth Circuit, is emphasized by the following remarks of Judge Morrow:

"In *Van Ness vs. Layne*, 213 Fed., 804, the patent was held valid and Claim 20 infringed. In that case the Court *sustained* the claim of the plaintiff that the protecting casing had *three* functions, namely: (1) To exclude water and detritus from the shaft and its bearings; (2) to provide a means of lubricating the bearings of each section of the shaft from the top of the well without removing the apparatus from it; and (3) *to align the bearings and the shaft* so as to prevent lateral displacement in the well and keep the shaft in a vertical position." (R. 1131.)

*It thus appears there is a direct conflict between the decision herein of the Circuit Court of Appeals for the Ninth Circuit and the decisions of the Circuit Court of Appeals for the Fifth Circuit in respect to the "mode of operation" of the Layne mechanism covered by the patent claims in suit.*

Furthermore, in respect to such *mode of operation* of Layne's device, there is a similar conflict between

the respective views of the two Judges, rendering the decision herein of the Circuit Court of Appeals, and of Circuit Judge Gilbert dissenting therefrom, and of District Judge Dietrich, overruled thereby.

*In respect to the construction and scope of the three Layne patent claims, involved herein, there is also a direct conflict between the decisions respectively rendered by said two Circuit Courts of Appeals and between the views of said two Judges, rendering the decision herein of the Circuit Court of Appeals, and the views respectively expressed by Judge Gilbert, in his dissenting opinion, and by Judge Dietrich, in rendering the District Court's decision herein.*

Layne's generic, revolutionary invention is covered by and broadly expressed in said three *generic* claims which read as follows:

"9. In well mechanism the combination with a pump casing, of a rotary pump of a jointed pump shaft and a closed casing surrounding the pump shaft from the pump to the top of the well.

13. The combination with a pump and its actuating shaft of a sectional casing therefor provided at each end of each section with a fixed block with bearings for the shaft, the casing being closed at the top and provided with an air vent.

20. The combination of a well casing, a rotary pump therein, and a line shaft for the pump entirely closed off from the water in the well."

The casing, enclosing the shaft from the pump impeller casing to the top of the well and designated as the "shaft casing," is an element of each of said claims.

In Claim 9, said *shaft casing* is described as "*a closed casing surrounding the pump shaft from the pump to the top of the well.*"

In Claim 13, said *shaft casing* is described as a "*sectional casing therefor,*" that is, a sectional casing for the actuating shaft previously mentioned in the claim.

In Claim 20, the said *shaft casing* is referred to in the expression: "*A line shaft for the pump entirely closed off from the water in the well.*"

The alinement function of said *shaft casing* has been discussed.

The said casing also protects the shaft and its bearings from the water being pumped and the sand and detritus carried thereby.

The said *shaft casing* also forms a *conduit* into which, at the top of the casing adjacent the mouth of the well bore, lubricant is fed and such lubricant flows, by gravity, down through the casing lubricating, in series, the shaft bearings mounted in such casing.

From a practical and commercial point of view, it is quite immaterial whether the *shaft casing* be completely closed, at the bottom thereof, or permits the escape therefrom of the lubricant which, on reaching the bottom of the casing, has completely performed its function of lubricating the shaft bearings. Furthermore, the downward pressure of the lubricant, within the *shaft casing*, and its escape, from the bottom thereof, co-operate with the casing in preventing the entrance, into the casing and access to the shaft

bearings, of the water being pumped and the sand and detritus carried thereby.

In other words, the shaft casing, notwithstanding it is *not* completely closed at the bottom thereof, is capable of practically performing the two functions of protecting the shaft bearings, from the destructive action of the sand and detritus in the water being pumped, and of forming a *conduit* for the lubricant.

*Therefore, in construing Layne's patent claims, the Circuit Court of Appeals for the Fifth Circuit did not limit them to a structure in which the shaft casing was completely closed at the bottom thereof.*

The Van Ness pump structure was *held to infringe* the Layne patent, *notwithstanding* that the Van Ness shaft casing was *not* completely closed at the bottom thereof and, therefore, *permitted the escape of lubricant therefrom* and, when the pump was idle, permitted water to enter therein. Regarding infringement of the Layne patent by the Van Ness pump, the Court of Appeals for the Fifth Circuit said:

"The defendant denies that his pump shaft casing performs any one of the three functions attributed to that of the patent in suit. He denies that it is a closed casing in any true sense. It seems not to be closed so far as concerns the entrance of air. *However, the proper interpretation of the words 'closed casing' is a closure only against what is necessary to be excluded for the successful operation of the invention, and that, in this case, as we understand it, is water and sand, because when not excluded the first corrodes and the second wears the shaft and its bearings.*

It seems also true that the closure against water is only partial, since the lower bearing of defendant's apparatus is not within the inclosing casing, though the intermediate and top bearings are. So it seems doubtful whether the defendant's pump casing keeps the water from the shaft and bearings when it is not in operation, and the argument is that in the rice country, where it is principally used, it remains out of service nine months of the year. For these reasons, it is argued that the defendant's casing is not a closed one, even against water and sand. However, the record shows that protection against water and sand is afforded by defendant's casing to all but one of the bearings and to the shaft in the same degree as by that of the patented casing, at least during the period of the pump's operation, and that the protection afforded by defendant's casing is different only in degree from that afforded by the patented casing. The closure in the patented casing is effected by stuffing boxes *as well as by the presence and downward pressure of the oil between the bearings and the shaft*, which serves to keep the water from pressing upward into the shaft casing between the bearings and the shaft. The closure in defendant's casing is effected *by the last method only*, and without the use of packing or stuffing boxes. Each casing serves to effect at least a partial closure against the water and sand. The difference is one of method and degree only, and for that reason it seems that the defendant's casing infringes this element of the patent, at least to some extent.

The second function of the patented casing is that of providing lubrication for the bearings. In *both* casings, that of defendant as well as that of complainant, *the oil is put in the apparatus at the top and passes through the bearings from the*

*top through the intermediate to the lower bearing, being retained for a time above each bearing and serving in this way not only to lubricate each bearing, but also to help close the shaft casing against the ingress of water and detritus. The defendant's casing and that of the patent in suit perform this function to substantially the same extent, though the respective bearings as to the means for the flow of the oil through them are somewhat differently constructed."*

In the *Getty* case, *supra*, the Circuit Court of Appeals for the Fifth Circuit again construed the Layne patent claims as *not* being limited to a structure embodying a shaft casing completely closed at the bottom thereof. In that case, the Court said:

*"The mere fact that Getty's closure is not complete, or not as complete and effective as that of Layne's, is an unimportant fact."*

To the same effect are the findings herein of Judge Dietrich who also found that said claims were *not* limited to a shaft casing completely closed at the bottom thereof and from which no lubricant could escape. On the contrary, the trial Judge found, *as a fact*, that, in the Layne mechanism as disclosed in the Layne patent, the shaft casing *was not and could not be* made absolutely closed at the bottom thereof and *that lubricant would necessarily escape therefrom*. On this point, Judge Dietrich found as follows:

*" . . . It was undoubtedly Layne's desire and purpose in so far as possible to exclude the water*

from the shaft casing, but perfect mechanical inclosure of the shaft is, of course, unattainable; it must protrude from the stationary casing to connect with the rotating propeller, at a point where the pressure of the water is the greatest, and a bearing at that point so close fitting as to entirely exclude the water could not be lubricated, and hence would be impracticable. The provision made by the patent is for a long bearing equipped with a stuffing-box, which, *in conjunction with the down pressure of the oil in the casing*, serves under ordinary operating conditions, as an effective barrier to the sand, if it does not entirely exclude the water. . . .

In operation the oil is fed into the shaft casing above the uppermost bearing, and running down in the space between the casing and the shaft passes through the bearing, and thence down the casing through the several bearings, lubricating all in series. Manifestly, if the oil is fed into the casing faster than it is dissipated, the vacant space will in time fill up and the column of oil thus formed will press upon and *have a tendency to escape out of the lowest bearing, thus co-operating with the stuffing-box in excluding the water.* (R. 890.) In the actual operation of the *plaintiff's* mechanism *there is necessarily some escape of thin oil* through the bottom bearing; for, as already explained, a perfect closure at this point cannot be maintained. (R. 895.)

The said *findings*, of the District Court, were affirmed by Circuit Judge Gilbert who, in his dissenting opinion, said:

"In both the appellee's (Layne) and appellants' mechanisms the oil is introduced at the top in substantially the same manner, and by gravity it

traverses the entire length of the shaft, thereby lubricating all the bearings. *In both there is some escape of oil through the lowest bearing.* The contention that the two systems are differentiated in that the appellee's lubricating system is static, while that of the appellants' is circulatory *is not sustained by the proofs.* In the appellants' mechanism, the shaft casing being made impervious to water and packed with hard cup grease a distance above and below each bearing, the ingress of water is prevented, and the movement of the lubricating oil is impeded, so that there is no substantial difference in the operation of the two lubricating systems. Both use a closed casing surrounding the pump shaft from the pump to the top of the well, the casing being sufficiently closed to allow the feeding of a lubricating fluid down through the same to the various bearing parts for the shaft therein. Both accomplish the same result by substantially the same means, operated in substantially the same way. The fact that the appellants' static lubricants are supplemented by the use of an emulsifying oil is unimportant. *The fact that in the appellants' mechanism more oil escapes from the lowest bearing than in the appellee's is also unimportant.* The ultimate disposition of the lubricant after its office is fulfilled is immaterial. These differences do not enable the appellants to appropriate the substance of the appellee's invention." (R. 1149.)

*In direct conflict* with the foregoing construction of Layne's patent claims by the Circuit Court of Appeals for the Fifth Circuit and by the District Court herein and by Circuit Judge Gilbert, in his dissenting opinion herein, the Circuit Court of Appeals for the Ninth Circuit herein construed the



Layne patent claims, in suit, *as being limited to a structure in which no lubricant escaped from the bottom of the shaft casing.*

Admittedly, respondents' structure embraces all the mechanical features and elements specified in said several claims and, admittedly, the escape of such lubricant from the shaft casing is immaterial from a practical or commercial point of view as, in all the pumps sold by both petitioner and respondents, there is such an escape of lubricant.

The finding of non-infringement herein was, therefore, based on the reading into the said generic claims of a limitation relating to a wholly immaterial feature. In so *narrowly* construing said claims, his Honor, Judge Morrow, said:

"... but the *controlling* question still remains to be determined. Does the lubricating oil introduced into the defendants' shaft casing pass down through the bearings and after being used and spent, *finally pass out at the bottom of the shaft into the well proper* through a channel or auxiliary conduit constructed for that purpose? *If it does, then it is not the same mechanical device for lubrication claimed and specified in the plaintiff's patent.*" (R. 1142.)

Having so stated the "*controlling question*" in the case and having so construed and *limited* said claims, the Circuit Court of Appeals herein adjudged respondents' device not to infringe said claims *for the sole reason that some (not all) of the lubricant, after*

*performing its lubricating function, escaped from the bottom of respondents' shaft casing.*

In other words, the finding of non-infringement herein was based *solely and wholly* upon the immaterial and unimportant "*differences*" referred to in the above quoted findings of Judge Gilbert with the result that, *in the Ninth Circuit*, Layne's patent does *not* cover and, *in the Fifth Circuit*, does cover a structure embracing a shaft casing from which lubricant escapes from the bottom thereof.

And said finding herein of non-infringement is *supported* by the opinion of a Circuit Judge, concurred in by a District Judge, and *controverted* by the opinion of a Circuit Judge, concurred in by a District Judge who tried the case in open Court. Therefore, if, in respect to the said hearings of this case, District Judge Wolverton had been the trial Judge and District Judge Dietrich had been sitting in the Circuit Court of Appeals, where he frequently sits, the decision herein would have been in petitioner's favor, according to the respective views so expressed by said four Judges. Petitioner respectfully submits that such a situation justifies an authoritative review and decision herein by this Court.

From the foregoing, it appears that petitioner's patent discloses an invention which revolutionized the well-drilling industry and has gone into general use; that said patent, like all others respectively covering valuable contributions to the arts, has been extensively infringed; that said patent has been liberally con-

strued and the claims thereof accorded a broad scope by the Circuit Court of Appeals for the Fifth Circuit whereas the Circuit Court of Appeals for the Ninth Circuit, by a divided Court, has herein read into and limited said claims to a wholly immaterial feature never present in any structure ever sold by Layne or by any owner of the Layne patent or of rights thereunder; and that there are now pending in different Circuits numerous suits for the infringement of the Layne patent.

In view of the foregoing, it is of importance and to the interest of the public that there be uniformity of decision in respect to this Layne patent and that the scope thereof, in all nine circuits, be determined by the authoritative decision of this Court.

WHEREFORE, because of the gravity and importance of the questions involved herein and *in the interest of uniformity of decision*, your petitioner respectfully prays that a writ of certiorari may be issued out of and under the seal of this Court, directed to the Judges of the United States Circuit Court of Appeals for the Ninth Circuit and commanding them and each of them to certify and send to this Court on a day certain to be therein designated, a full and complete transcript of the record and proceedings of the said Circuit Court of Appeals in the case lately pending therein entitled, "*Western Well Works, Inc., et al., appellants, vs. Layne & Bowler Corporation, appellee, No. 3627,*" to the end that the judgment or decree of said Circuit Court

of Appeals in said case may be reviewed as provided by the statutes in such cases made and provided, and that your petitioner may have such other and further relief or remedy in the premises as to this Court may seem appropriate and in conformity with the law.

And your petitioner will ever pray.

LAYNE & BOWLER CORPORATION.

By FREDERICK S. LYON,  
WILLIAM K. WHITE,  
LEONARD S. LYON,

As counsel and attorneys for Petitioner.

FREDERICK S. LYON,  
WILLIAM K. WHITE,  
LEONARD S. LYON,  
Counsel for Petitioner.

State of California, City and County of San  
Francisco.—s. s.

WILLIAM K. WHITE, being first duly sworn,  
deposes and says that he is counsel for the petitioner,  
Layne & Bowler Corporation; that he has read the  
foregoing petition and the matters of fact stated  
therein are true to the best of his knowledge, in-  
formation and belief.

WILLIAM K. WHITE,

Subscribed and sworn to before me this 16th day  
of February, 1922.

W. W. HEALEY,

Notary Public in and for the City and County of  
San Francisco, State of California.

In our opinion the foregoing and annexed petition  
for *certiorari* is well founded as to matters of fact  
and as to matters of law.

FREDERICK S. LYON,  
WILLIAM K. WHITE,  
LEONARD S. LYON,  
Counsel for Petitioner.

# In the Supreme Court

OF THE  
UNITED STATES

LAYNE & BOWLER CORPORATION,

*Petitioner-Plaintiff,*

vs.

WESTERN WELL WORKS, INC. (a Corporation), ROTARY DRILLING AND DEVELOPMENT COMPANY (a Corporation), STANLEY M. HALSTEAD, P. E. VAUGHAN and ALLEN W. ROSS,

*Respondents-Defendants.*

BRIEF IN SUPPORT OF PETITION FOR  
WRIT OF CERTIORARI

## PRELIMINARY REMARKS

The conflict, between the respective decisions of the Circuit Courts of Appeals for the Fifth and Ninth Circuits in regard to the Layne patent, has been pointed out in the annexed petition and is apparent from the quotations from said decisions set forth in such petition.

The said conflict is in relation to the *scope* of

Layne's patent claims and it was only by *narrowing* the scope, accorded to said claims by the Circuit Court of Appeals for the Fifth Circuit, that the Circuit Court of Appeals for the Ninth Circuit was herein able to find respondents' structure to be outside the monopoly granted by said claims.

As construed by the Circuit Court of Appeals for the Fifth Circuit, the Layne patent would be infringed by respondents' structure.

We understand the well established rule to be that this Honorable Court will always grant a writ of certiorari where such a conflict exists.

Although this conflict is apparent on the face of the said quotations from such decisions, nevertheless we shall herein discuss, more at length, the situation presented by the annexed petition.

The finding of non-infringement herein is *wholly based* upon two findings in conflict with the findings of the Circuit Court of Appeals for the Fifth Circuit in respect to two controlling factors which respectively relate to the "*alignment function*" of the shaft casing and to the *bottom closure* of such shaft casing in respect to the escape of lubricant therefrom.

(a) The Circuit Court of Appeals for the Fifth Circuit adjudged that Layne's shaft casing performed the function of *aligning* the shaft bearings and shaft.

The Circuit Court of Appeals for the Ninth Circuit herein adjudged that Layne's shaft casing did *not*

perform such *aligning* function and made use of this *conflicting* finding as a basis for narrowing the scope of Layne's contribution to the art and for narrowing the scope of his patent claims covering such contribution.

(b) The Circuit Court of Appeals for the Fifth Circuit adjudged Layne's patent claims covered a structure in which lubricant escaped from the bottom of the shaft casing embraced in such structure.

The Circuit Court of Appeals for the Ninth Circuit herein adjudged said claims did *not* cover a structure in which lubricant escaped from the bottom of the shaft casing embraced in such structure.

And, accordingly, respondents' structure was adjudged not to infringe Layne's "*revolutionary*" patent *solely and wholly* for the reason that a *part* (not all) of the lubricant used therein escaped from the bottom of the shaft casing.

It will not be necessary to describe the respondents' structure because the finding of non-infringement was based *wholly* on such escape, from respondents' shaft casing, of *some* of the lubricant used therein. Obviously, such structure embraces all of the mechanical elements of the respective combinations of Claims 9, 13 and 20, and the Circuit Court of Appeals did not *even* attempt to differentiate such structure from Layne's structure other than in respect to the escape of *some* lubricant from respondents' shaft casing. As



said by Judge Morrow, in speaking for that Court, the "*controlling question*" was whether or not any lubricant escaped from respondents' shaft casing. "*If it does,*" said he, "then it is not the same mechanical device for lubrication claimed and specified in the plaintiff's patent" (R. 1142).

At this time it may be well to point out that Layne's patent claims do not describe or cover or attempt to describe or cover any *method or process* of lubrication as necessarily implied in the foregoing remarks of Judge Morrow. Said claims respectively describe and cover combinations of *mechanical elements*, one of which mechanical elements is a "*shaft casing*" adapted to perform three functions in the operation of the device. To perform two of said functions, to wit: the function of protecting the shaft bearings from the destructive action of the detritus in the water being pumped and the function of forming a *conduit* for the lubricant used in lubricating the shaft bearings, such shaft casing must be sufficiently closed, at the bottom thereof, to practically accomplish the desired objects. However, it *need not be*, as found by the Circuit Court of Appeals for the Fifth Circuit, *and cannot be*, as found by the trial Judge herein, absolutely closed at the bottom thereof. It need not be absolutely closed because, as found by the Circuit Court of Appeals for the Fifth Circuit, *the column of lubricant therein co-operates with the casing in excluding water and detritus therefrom.*

"However, the proper interpretation of the words 'closed casing' is a closure only against what is necessary to be excluded for the successful operation of the invention. . . ." (C. C. A. for Fifth Circuit in *Van Ness* case, *supra*).

"The mere fact that Getty's closure is not complete, or not as complete and effective as that of Layne's, is an unimportant fact" (C. C. A. for Fifth Circuit in *Getty* case, *supra*).

" . . . perfect mechanical inclosure of the shaft is, of course, unattainable; it must protrude from the stationary casing to connect with the rotating propeller, at a point where the pressure of the water is the greatest, and a bearing at that point so close fitting as to entirely exclude the water could not be lubricated, and hence would be impracticable. . . . Manifestly, if the oil is fed into the casing faster than it is dissipated, the vacant space will in time fill up and the column of oil thus formed will press upon and have a tendency to escape out of the lowest bearing, thus co-operating with the stuffing-box in excluding the water. . . . In the actual operation of plaintiff's mechanism there is necessarily some escape of thin oil through the bottom bearing; for, as already explained, a perfect closure at this point cannot be maintained" (Trial Judge Dietrich, R. 890, 895).

As found by Circuit Judge Gilbert:

"The fact that in the appellants' mechanism more oil escapes from the lowest bearing than in the appellee's is also unimportant. The ultimate disposition of the lubricant after its office is fulfilled is immaterial. *These differences do not enable the appellants to appropriate the substance of the appellee's invention*" (R. 1149).

## I

THE LAYNE PATENT DISCLOSES A FUNDAMENTAL GENERIC INVENTION WHICH ACCOMPLISHED A REVOLUTION IN THE PUMP ART AND STANDS AT THE HEAD OF A NEW CLASS THEREIN.

The Layne "patent is of a *fundamental, generic character*," said Judge Dietrich herein.

*"The Layne patent . . . did accomplish a revolution in the well drilling industry,"*

said the Circuit Court of Appeals for the Fifth Circuit.

Prior to the introduction of Layne's revolutionary invention, the general type of pump installation was one involving the digging of an open pit and the mounting of the pump *on the bottom of the pit*. Such a pit construction is illustrated in "Plaintiff's Exhibit No. 2" (R. 915), reproduced in the annexed petition.

Mr. Layne had for years been installing pumps. He was thoroughly familiar with the dug pit installations—its dangers and inefficiencies. The problem, which confronted him and which he so successfully solved by his fundamental invention, was:

How could a mechanism be organized that would be efficient, practical and durable, and at the same time eliminate the necessity of man going down into the dug pit, and eliminate the necessity of the installation of the pump on the bottom of the pit or on the framework in the pit? How could he obviate

- (1) the necessity of digging the pit, and thereby eliminate
- (2) the risk necessarily assumed by man due to
  - (a) danger of caving in while the pit was being dug or while the men worked in the pit boarding it up or installing the pump; and
  - (b) the risk of personal injury or loss of life (frequent with the dug pit construction) due to the necessity of man descending into the pit to lubricate, make necessary repairs, etc.?
- (3) How could he construct and assemble on the ground a pump structure of the necessary great length (Layne pump structures 400 to 800 feet long, have been installed) and still be able to insert it in the small bore of a well?
- (4) How could he vary the length of such pump structure, after installation, in order to raise or lower it according to any variation in the level of the water in the well?
- (5) How could he protect the many necessary bearings for the long pump operating shaft so that the sand and other destructive detritus carried by the water being pumped would not cut out or destroy such bearings?
- (6) How could he assemble the bearings and pump shaft in proper relation and maintain the bear-

ings in such relation without the necessity of man descending into the well hole?

- (7) How could he provide for the alinement of such a long pump shaft in the well?
- (8) How could he efficiently lubricate the many bearings required in such a structure?

As said in the *Van Ness* case, there was a long "*unfilled want*" for just such a structure as that invented by Mr. Layne. Respondents herein proved that *forty-three years of development in this art*, prior to Layne's advent therein, had not filled such want.

Layne's solution of the problem embraced a broad, generic "*idea of means*," a fundamental invention.

He conceived the idea of supporting the whole structure at the top of the well so that it would hang pendant, like a plumb-bob.

He conceived the basic idea that such a structure, to be practical and, notwithstanding its great length, be capable of insertion in the small bore of a well, must be built up of many units, so that, *unit by unit*, the structure could be assembled at the mouth of the well-bore and, after the addition of each succeeding unit, be lowered a unit length into the well.

He appreciated that such a sectionalized structure, made up of as many units as the depth of the well required, would also necessarily be adapted to be lowered or raised, according to any variation in the level of the water in the well, by simply adding a unit to or subtracting a unit from the structure.

His said idea of assembling the pump and its mechanism, unit by unit, at the top of the well and lowering it, unit by unit, into the well while supporting it pendant from the top of the well was revolutionary. It *pointed* to a solution of the dug pit problem; no man need enter the pit. In fact, no pit need be dug; a small bore was all that was required to accommodate such a pendant structure.

However,\* said idea did not solve the problem; it *merely pointed out the right road to be traveled in order to reach the desired goal*. Many additional problems obstructed such road; problems which had baffled all prior inventors in this art and caused many to seek entirely different roads, leading only to failure.

Some of these additional problems confronting Mr. Layne were:

(a) How could he provide the many necessary bearings to keep the pump shaft in alinement?

(b) How could he insert and hold such bearings in position along the shaft and hold them in alinement?

(c) How could he lubricate such bearings?

(d) How\* could he protect the bearings from the destructive action of the sand, etc., in the water being pumped?

All these things had to be provided for in such manner that all the parts of the structure could be assembled, unit by unit, at the top of the well and,

when lowered into the well, would function properly without the necessity of man entering the well for any purpose whatsoever.

Without a solution of these problems, Layne's underlying idea of assemblage and installation from the top of the well and of pendant support could not be realized.

These additional problems were solved by Mr. Layne's conception of *a sectional casing enclosing the line or power shaft from the top of the pump to the top of the well.*

Such a shaft enclosing casing could be made up of sections of the desired length so that a shaft bearing could be inserted at the end of each length. Such a shaft enclosing casing could be connected to the *water-discharge* casing and thus form an integral structure adapted to be supported at the top of the well and hand pendant like a plumb-bob.

The shaft enclosing casing, being an integral part of such pendant structure, hanging like a plumb-bob, would itself be maintained in *alinement* and thus would hold, *in alinement*, the shaft bearings and thereby the shaft.

By so mounting the many shaft bearings in such a shaft enclosing casing, Mr. Layne was able to utilize said casing as a means of *protecting* the bearings from the destructive action of the sand, etc., in the water being pumped.

Mr. Layne also conceived the idea of utilizing this same shaft enclosing casing as a means or *conduit*

for conveying lubricant to each of the bearings therein by providing for the feeding of lubricant into the casing above the topmost bearing therein so that such lubricant would, by gravity, circulate or pass down between such bearing and the shaft and between each succeeding bearing and the shaft, thus lubricating all the bearings *in series*.

It is thus seen that Layne's shaft enclosing casing performs the following three functions:

- (1) *Alinement* of shaft bearings;
- (2) *Protection* of shaft bearings from the destructive action of the sand, etc., in the water being pumped; and
- (3) *Conduit* for lubricant for shaft bearings.

Having solved the problems of *alinement*, *protection* and *lubrication* by means of his shaft enclosing casing, Mr. Layne was then in a position to carry out his underlying idea of a structure built up of units adapted to be assembled at the top of the well and, when lowered into the well, to be supported from the top and hang pendant.

Such a structure, expressing and embodying Layne's generic invention, embraces:

A deep well pump mechanism, adapted to be assembled, *unit by unit*, at the mouth of the well bore and be successively lowered therein *a unit's length* after the addition of each succeeding unit and, when completely assembled and lowered, to *hang pendant*



from the surface, like a plumb-bob; said mechanism consisting of, in combination:

- (1) A *pump* attached to a sectional line or power shaft extending to the top of the well;
- (2) A *pump casing* enclosing the pump impeller;
- (3) A *water discharge, sectional casing* connected to the pump casing and through which the pumped water passes to the top of the well;
- (4) A *sectional shaft enclosing casing* extending from the pump casing to the top of the well and said *shaft enclosing casing* being adapted to:
  - (a) Hold *in alinement* the line shaft by means of suitable *bearings fixed* within said casing at appropriate intervals;
  - (b) To *protect* the line shaft and its bearings from wear or injury by any sand, grit; or other bearing destroying detritus carried by the water being pumped; and
  - (c) To form a *conduit for lubricant* from the top of the casing down through each succeeding bearing, including the lowest bearing, thus lubricating all said bearings *in series*.

Having conceived his broad, generic "idea of means" or invention, it was then necessary for Mr. Layne to decide, according to his own judgment,

upon the best *species* or *form* in which to express his generic "*idea of means*."

Every invention comprises an abstract "*idea of means*" expressed in concrete form. There is no idea that cannot be expressed in a number of ways, each expression thereof being the equivalent of every other expression of the same idea. This is universally true. For instance, the idea that an object is round can be expressed in a number of ways. The same idea may be expressed thus: Every point on the object's surface is equally distant from the center of the object. The same idea may be expressed in any of the foreign languages.

*It follows, therefore, that there can be no generic expression of a generic idea.*

This is true in connection with mechanical inventions. Where an inventor conceives an "*idea of means*," it is always possible to express said idea of means in many different concrete forms, each the equivalent of every other. This is true, no matter how narrow and restricted the idea of means may be.

It is, however, obvious that a broad, comprehensive generic "*idea of means*" can be expressed in a greater number of ways than can a narrow, restricted "*idea of means*," hence the so-called rule of law that "*the range of equivalents varies with the scope of the invention.*"

As a matter of fact, said statement is not a "*rule of law*" but a "*law of nature.*" Before any patent laws were ever enacted, it was true that a broad

"*idea of means*" or, in other words, a *generic* invention, could be expressed in concrete form in more equivalent ways than could a narrow "*idea of means*" or specific invention.

Congress has recognized the existence of this "*law of nature*" that every invention can be expressed in many different concrete forms, each the equivalent of every other. We, therefore, find in Section 4888 of the Revised Statutes the following provision as to what an inventor must embody in his application for letters patent:

" . . . in case of a machine, he shall explain the principle thereof and the *best mode* in which he has contemplated applying that principle, . . . "

According to this section, an inventor is only required to describe, in his application for a patent, the "*best mode*" of embodying his "*idea of means*" in concrete form.

The Patent Office rules are to the same effect and the Patent Office does not require and does not permit an applicant to show, in his application, every possible form in which his invention can be embodied.

In view of the foregoing, an inventor need only show in his patent his *preferred form* of embodiment of his invention. When he has done this, he is *entitled* to *claim* his *actual invention* in whatever form it can be embodied.

Mr. Layne's *preferred form* of embodiment of his generic invention is illustrated in Figures 1, 2, 5, 7,

8 and 9 of his patent drawings reproduced in the annexed petition.

Figure 1 discloses an exterior view of the *shaft enclosing casing* 20, extending from the top of the well to the pump impeller casing 21, together with the *water discharge casing* or outlet pipe 23. It will be noted each of these casings is made up of a number of *sections*. As said by Layne: "The outlet pipe 23 is also preferably made in sections to correspond with the sections of the pump shaft casing" (p. 2, l. 108).

It will be also noted that the *shaft enclosing casing* 20 and the *water discharge casing* or outlet pipe 23 are *bound together* to form an *integral structure* which is supported at the top of the well in frame work 24 and thus said *integral structure* hangs *pendant*, like a plumb-bob, in the well-bore, which is lined with the casing 16.

As said on page 1 of Layne's patent, line 104:

"As shown in Figure 2, the shaft casing 20 and the outlet pipe 23 are *bound together* by means of the block-and-strap arrangement 26. These connecting devices are distributed at intervals along the length of the shaft casing."

In this Figure 1, a portion of one of the line shaft sections 39 is seen projecting from the top of the shaft casing and extending up to the drive pulley 25.

In Figure 1, the water discharge casing or outlet 23 is illustrated as *eccentric* to the shaft casing although, on page 2, line 124 of his patent, Mr.

Layne states the water discharge casing may be *concentric* with the shaft casing. This, however, is a mere matter of detail or form.

Also, in Figure 1, the pump mechanism is disclosed installed in connection with an old pit or chamber 15. Said pit serves no purpose and performs no function and Mr. Layne states, on page 1, line 88, that the well casing 16 may be extended to the surface and thus the pit or chamber 15, be dispensed with.

1. ALINEMENT—Figures 7, 8 and 9 disclose the interior of the sectional shaft casing 20 including the sectional shaft 39' and the shaft bearings 47', respectively supported in the shaft casing at the respective ends of adjacent shaft casing sections.

As said shaft casing 20 is an *integral part* of the whole structure which hangs *pendant*, like a plumb-bob, the *shaft casing* itself will so hang and thus hold in *alinement* the shaft bearings mounted within the casing and thereby maintain the shaft in *alinement*.

2. LUBRICATION—Pipe 52 is a means by which the lubricant can be fed into the shaft casing above the first shaft bearing therein. Such lubricant will, by gravity, flow or circulate down through such first bearing and through each succeeding bearing within the shaft casing and finally pass out of the casing, at the bottom thereof, and into the pump casing 21, thus lubricating all the shaft bearings, in series. In such series lubrication of all the bearings therein,

the shaft enclosing casing merely functions as a *conduit for the lubricant* which enters the upper end thereof and passes down there through and through each bearing therein.

In order that the lubricant may so flow, *by gravity*, down and through each of the bearings within the shaft casing, an air-vent is provided at the top of the casing. The reason for having such a vent or air opening in the casing above the lubricant is precisely the same reason as that which prompts the housewife, when drawing coal oil from the spout at the bottom of a five-gallon coal oil can, to make a hole in the top of the can to admit air above the coal oil and thus equalize the air pressure above and below the oil. If this were not done, a vacuous or no atmospheric pressure condition would be created above the oil in the can as the oil level was lowered. As the oil, at the spout of the can, would be subjected to full atmospheric pressure it is apparent the oil would not freely flow out of the spout if the top surface of the oil, in the can, were not likewise subjected to an equal atmospheric pressure. As defined in the Century Dictionary and Cyclopedia a vent is "The opening in the top of a barrel to allow air to pass in as the liquid is drawn out." In the Layne structure, air will pass into the casing either through the stuffing-box 50, at the top of the casing, or through pipe 52, if the cap thereon be only loosely screwed on the pipe. Of course, this is a mere detail requiring no explanation to one skilled in the art and

attempting to practice the Layne invention as disclosed in his patent.

3. PROTECTION—In Figure 7, the stuffing-box 50 is illustrated as a closure means for the shaft enclosing casing at the top thereof. In Figure 5, a stuffing-box 40 is illustrated as a closure means for the shaft enclosing casing at the bottom thereof. According to the proofs and, as is well known in the world of mechanics, a stuffing-box operates as a bearing and, when used in connection with a high speed rotating shaft, the stuffing material therein cannot be maintained in such close relation with the shaft as to prevent the passage of all liquid between the stuffing and shaft. Like every other type of bearing, the stuffing must be lubricated or it will heat and burn, thus being destroyed.

Therefore, the lubricant, fed into the upper end of the shaft enclosing casing, will circulate or flow down through each succeeding bearing therein and a substantial portion thereof, if not all thereof, will pass through stuffing-box 40 into the pump casing 21.

As said shaft casing encloses the shaft and its bearings from the pump casing to the top of the well, it will be noted the only passage, through which the water being pumped and the detritus therein can enter the shaft casing, is the passage from the pump casing up along the shaft through stuffing-box 40 and between the shaft and the lowest bearing 47 in the shaft casing.

Any *upflow* of such water and detritus through such passage will be effectually obstructed by the said bearing and the stuffing-box and by the *downflow* of oil therethrough.

It is thus apparent that Layne's shaft enclosing casing, *in co-operation with the downflow of oil therein*, performs the function of protecting the shaft bearings from the destructive action of the sand and other detritus carried by the water being pumped.

The foregoing elements and features constitute Layne's *preferred form of embodiment* of his *generic* invention.

The said elements and features constitute Layne's broad and revolutionary contribution to the art and form the basis for the wonderful commercial success of the Layne invention.

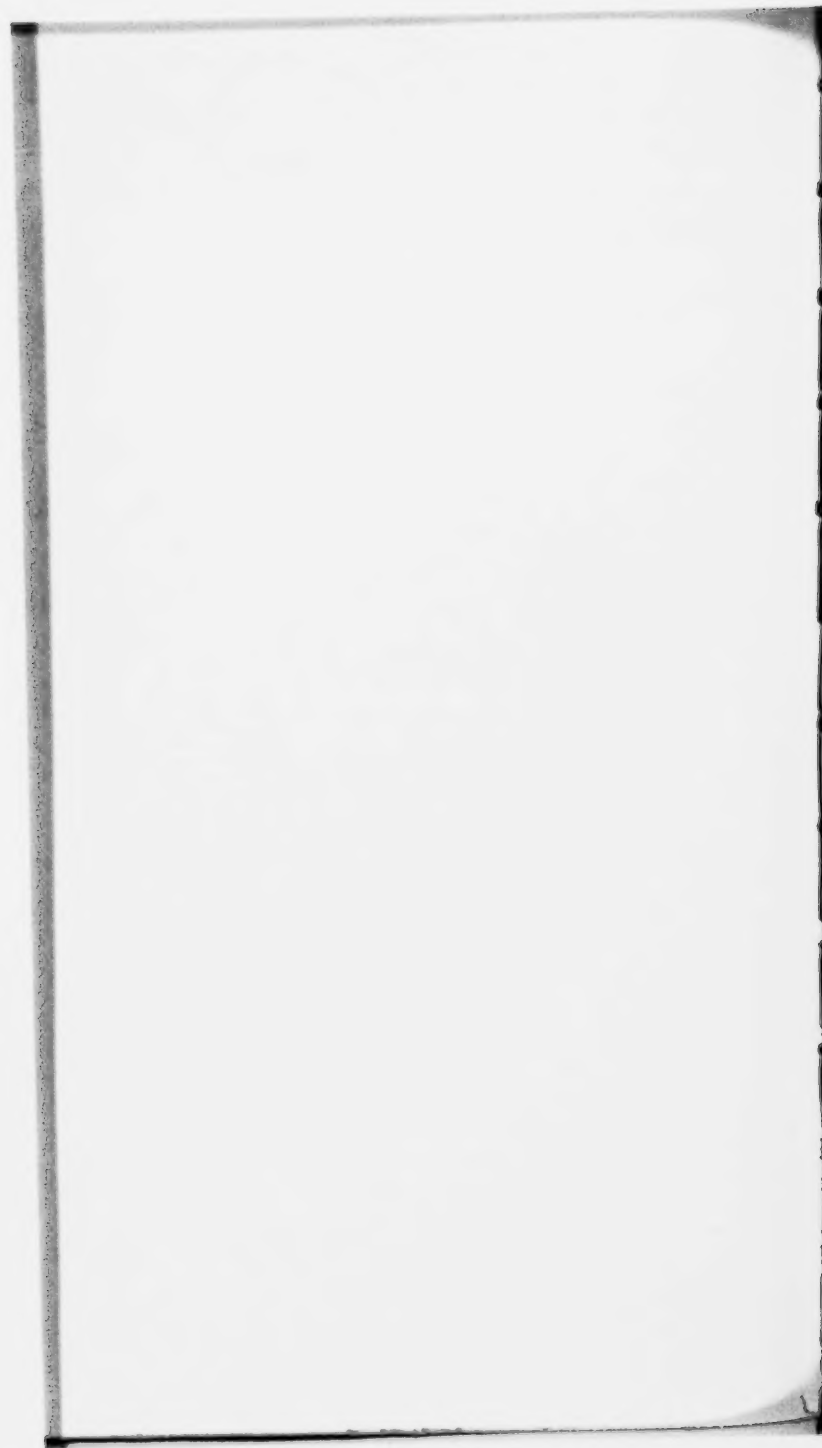
*The said elements and features constitute a complete operative structure.* No other element, no adjunct and no subsidiary feature, described in the Layne patent, is essential to the operativeness of the above-described combination as an expression of Layne's *generic* "idea of means."



DECISION OF CIRCUIT COURT OF APPEALS FOR FIFTH  
CIRCUIT IN VAN NESS CASE, 213 FEDERAL REPORTER  
804 AND IN GETTY CASE, 262 FEDERAL REPORTER  
141.

In order that your Honors may know precisely what pump structure was held to infringe in the *Van Ness* case, we reproduce on the opposite page a drawing of the Van Ness pump. The original cut, of which this drawing is a reproduction, appears opposite page 73 of the Brief filed in the Circuit Court of Appeals by the appellant, Marvin B. Van Ness. The opinion of the Court of Appeals, in the *Van Ness* case, shows this drawing was accepted as correctly disclosing the Van Ness pump.

By reference to this drawing, it will be seen the Van Ness pump embraced a structure hung *pendant* from the top of the well and including a *sectional shaft* enclosed in a *sectional casing* provided with *intermediate shaft bearings* and said casing being surrounded by the water discharge casing communicating with the discharge outlet of the pump casing. The lubricant is fed to a point above the first shaft bearing and circulates or passes, *by gravity*, between such bearing and the shaft, between each successive bearing, within the shaft enclosing casing, and the shaft and finally between *the long sleeve bearing* and shaft into the pump casing, thus lubricating all said bearings, in series.



It will be noted that the lower *thrust* bearing does not bear on its seat and, therefore, offers no *mechanical obstruction* to the passage of the lubricant down between the *long sleeve bearing* and the shaft. Conversely, said *thrust* bearing offers no *obstruction* to the passage of water up between the long sleeve bearing and shaft and then out into the shaft enclosing casing. Of course, the "*long sleeve bearing*," itself, offers a mechanical obstruction to the flow of water and detritus upward between it and the shaft. This "*long sleeve bearing*" plus "*the downpressure and downflow of lubricant*" prevent the water being pumped and the detritus carried thereby from passing upward between the long sleeve bearing and shaft and thus coming into contact with and destroying the *intermediate* bearings located within the shaft enclosing casing.

The Court of Appeals for the Fifth Circuit held this Van Ness pump infringed because it embodied the *substance* of Layne's idea of means and embraced a shaft enclosing casing performing the three functions of (a) *protection*, (b) *conduit for lubricant* and (c) *alinement*.

(a) *Protection in Van Ness pump*: Regarding the protection afforded by the shaft enclosing casing against the destructive action of the detritus carried by the water being pumped, the Court said:

"The defendant denies that his pump shaft casing performs any one of the three functions attributed to that of the patent in suit. He denies that it is

a closed casing in any true sense. It seems not to be closed so far as concerns the entrance of air. *However, the proper interpretation of the words 'closed casing' is a closure only against what is necessary to be excluded for the successful operation of the invention, and that, in this case, as we understand it, is water and sand, because when not excluded the first corrodes and the second wears the shaft and its bearings. It seems also true that the closure against water is only partial, since the lower bearing of defendant's apparatus is not within the enclosing casing, though the intermediate and top bearings are. So it seems doubtful whether the defendant's pump casing keeps the water from the shaft and bearings when it is not in operation, and the argument is that in the rice country, where it is principally used, it remains out of service nine months of the year. For these reasons, it is argued that the defendant's casing is not a closed one, even against water and sand. However, the record shows that protection against water and sand is afforded by defendant's casing to all but one of the bearings and to the shaft in the same degree as by that of the patented casing, at least during the period of the pump's operation, and that the protection afforded by defendant's casing is different only in degree from that afforded by the patented casing."*

INFRINGEMENT IS NOT AVOIDED BY IMPAIRMENT OF THE  
FUNCTIONS OF AN ELEMENT IN DEGREE

It will be noted the Court held it immaterial that the Van Ness shaft enclosing casing did not afford *as complete protection* as did the Layne casing. This finding is in accord with numerous decisions to the

effect that "Infringement is not avoided by impairment of the functions of an element of a patented device *in degree* . . ."

*Kawneer Mfg. Co. vs. Detroit Show Case Co.*,  
240 Fed., 739.

As said by now Chief Justice Taft in the case of *King Ax Co. et al. vs. Hubbard*, 97 Fed., 795, 803, Judges Lurton and Severens concurring:

"This is an instance, not infrequent in patent litigation, where the infringer has sought to evade the claims of a patent, the *substance* of which he is appropriating, by deliberately *impairing the function* of one element, without destroying the *substantial* identity of structure operation, and result. *Sewall vs. Jones*, 91 U. S., 171; *Coupe vs. Weatherhead*, 16 Fed., 673; *Machine Co. vs. Binney*, 24 Fed. Cas., 653."

It is to be noted, however, that it is when the pump is in operation that the bearings need protection from the destructive action of the sand and detritus carried by the water being pumped.

When the pump is idle, the water in the well is in a relatively quiescent state and, therefore, the sand and detritus therein *settles* so that any water, which might get into the shaft casing during such periods of idleness, would not carry such destructive detritus. Furthermore, the sand and detritus will wear and cut out the bearings and shaft *only* when the shaft is *rotating* during the pump's operation. When the shaft

is *not* rotating and the water is practically quiescent, there could be no wearing or destructive action by the detritus. Furthermore, the lubricant adhering to the shaft and bearings after cessation of operations, would sufficiently protect same from corrosion by any water that might slowly seep into the casing during non-operating periods.

It is, for the foregoing reasons, that the said Court of Appeals, in the *Van Ness* case, held the Van Ness pump embodied the substance of Layne's protective feature because, when operating, the Van Ness shaft enclosing casing, *in co-operation with the downflow of lubricant therein*, effectually excluded the water being pumped and the detritus carried thereby. In other words, as said in substance, by this Court, in *Sewall vs. Jones, supra*, to constitute infringement it was not necessary for Van Ness to employ Layne's invention *to as good advantage as Layne employed it* or that the result should be the same *in degree*. Furthermore, if Van Ness had seen fit so to do, he could have continued the feeding of the lubricant during the pump's idle periods, in which event *the downflow of lubricant*, in co-operation with the shaft casing, would have continued to exclude all water and detritus precisely as during operating periods. Layne's means were present for accomplishing such a result.

Continuing its discussion of the Van Ness closure, the said Court of Appeals said:

"The closure in the *patented* casing is effected

by stuffing boxes as well as by the presence and downward pressure of the oil between the bearings and the shaft, which serves to keep the water from pressing upward into the shaft casing between the bearings and the shaft. The closure in defendant's casing is effected by the last method only, and without the use of packing or stuffing boxes. Each casing serves to effect at least a partial closure against the water and sand. The difference is one of method and *degree* only, and for that reason it seems that the defendant's casing infringes this element of the patent, at least to some extent."

The foregoing *finding of fact* fully confirms the correctness of Mr. Layne's testimony herein (R. 606) to the effect that, in the Layne patented structure, the water and sand are excluded from the shaft enclosing casing by

1. Mechanical means "*helped*" by the co-operation of the
2. *Downward flow and pressure of the lubricant.*

It will be noted, the said Court of Appeals found that, in the Van Ness structure, the water and sand were excluded.

2. "By the last method only," to wit: *the downward flow and pressure of the lubricant.*

However, we believe the Court simply meant, by so finding, that the Van Ness structure did not embrace packing or stuffing-boxes, but did embrace, as is obvious, *the long sleeve bearing*, in co-operation with which *mechanical means* the downward pressure of the lubricant could exclude the water and sand.

In the *Van Ness* case, the defendant produced proofs showing that the lower thrust bearing rested on its seat on the brass bushing only during the installation of the pump. The shaft was then raised and adjusted so such contact between this bearing and the brass bushing was eliminated. The testimony on this point is quoted on page 74 of the *Van Ness* brief and reads as follows:

"A. The lower thrust bearing as shown on that drawing (heretofore reproduced herein) does not operate when the pump is in operation. It is put on that pump solely for the means of acting as a stop and when the pump is ready for operation this lower thrust or stop bearing is raised from the bushing and the thrust is placed on the ball thrust bearings at the top of the pump and being placed there by the top adjusting nut, as shown. The thrust is transmitted through the pulley through this thrust bearing."

The foregoing shows this thrust bearing *in no way* aided the *downward pressure of the lubricant* in excluding the water and sand. That the Court accepted this proof as *correctly disclosing the operation* of the *Van Ness* pump, is clearly indicated by its finding that "The closure in defendant's casing is effected by the *last method only*, and without the use of packing or stuffing-boxes." The "*last method*" was described by the Court as "*the presence and downward pressure of the oil between the bearings and the shaft, which serves to keep the water from pressing upward into the shaft casing between the bearings and the shaft.*"



(b) *Lubrication in Van Ness Pump*: Regarding the lubrication employed in this pump structure, the Court of Appeals said:

"The second function of the *patented* casing is that of providing lubrication for the bearings. In *both casings*, that of defendant *as well as that of complainant*, the oil is put in the apparatus *at the top and passes through the bearings from the top through the intermediate to the lower bearing*, being retained for a time above each bearing and serving in this way not only to lubricate each bearing, *but also to help close the shaft casing against the ingress of water and detritus*. The defendant's casing and that of the patent in suit perform this function to substantially the same extent, though the respective bearings as to the means for the flow of the oil through them are somewhat differently constructed."

It is obvious, said downward flow and pressure of the lubricant in Layne's patented casing could not "*help close the shaft casing against the ingress of water and detritus*" unless such lubricant was *able to enter and pass down between the shaft and the lowest shaft bearing and between the shaft and stuffing in box 40*, at which points the water and detritus would tend to enter the said shaft enclosing casing. If the lubricant passed between the shaft and such bearing and stuffing, it would then enter the pump casing containing the pump impeller, precisely as Mr. Layne testified herein.

It is to be noted that the shaft enclosing casing, so

far as lubrication is concerned, merely functions as a *conduit for the lubricant*. In the respective structures of Layne, Van Ness and respondents' herein, the lubricant is fed into the top of the shaft casing which merely acts or functions as a *conduit* down which the lubricant flows.

After the lubricant has passed down, in such conduit or shaft casing, through each of the bearings therein, *it has completed its lubricating function*. It is quite immaterial what then becomes of it. In such lubrication of the bearings, the shaft casing functions merely as a *conduit* and, therefore, such "*conduit function*" is completely performed by it in respect to any lubricant that has passed through all of the bearings. It is, therefore, quite immaterial, so far as concerns the performance of such conduit function, what becomes of the lubricant after it so passes through the casing.

*Nevertheless, the finding of non-infringement herein was based wholly upon the fact that some (not all) of the lubricant escaped from the bottom of respondents' shaft casing.*

In the first place, the lubricant passes through Layne's shaft casing and escapes from the bottom thereof through the stuffing-box into the pump casing, just as the proofs show and just as the Court of Appeals for the Fifth Circuit, in the *Van Ness* case, held and just as Judge Dietrich herein found to be the fact.

In the second place, if such were not the case, nevertheless infringement would not be avoided by any such immaterial variation in respect to an immaterial feature. Layne's patent is not on a process of lubrication but covers a structure, in which one element operates *as a conduit for the lubricant*. What becomes of the lubricant after passing through such conduit is immaterial. There is no pretense to the contrary.

The broad and *revolutionary* Layne invention does not depend, in respect to novelty, patentability, mode of operation and results accomplished, upon any such practically immaterial and minor characteristic *as the ultimate disposition* of the lubricant after it has performed its *twofold function* of lubricating the bearings and helping to exclude the water being pumped and the detritus carried thereby.

In the *Layne vs. Getty* case, the Court of Appeals for the Fifth Circuit found, *as a fact*, that

"The Layne patent . . . did accomplish a *revolution* in the well-drilling industry."

Certainly this *revolutionary* invention, to use the words of Judge Gilbert in *Parker vs. Stebler*, 177 Fed., 210, "*marked a distinct step in advance, whereby a notable success was achieved.*"

It can properly be designated as a "*pioneer improvement*" which stands *at the head* of a *new class* in this art. Being of such a *generic* character, the

*generic* claims in suit should be accorded a liberal construction and held to cover every *species* within the *genus*.

(c) *Alinement of Bearings in Van Ness Pump*:  
Regarding this feature, the Court of Appeals said:

"The third function performed by the shaft casing of the patent in suit is that of *aligning the bearings and the pump shaft* so as to keep the latter in a vertical position in the well. In the absence of intermediate support, the tendency of the shaft, if suspended only from the top, would be to swing laterally in the well, and so get out of alignment. This is corrected by taking advantage of the downward pressure of the shaft due to gravity, in connection with the intermediate bearings through which the shaft passes."

The Court found this feature present in the Van Ness pump which is, like Layne's, a structure *suspended* from the top of the ground—a *pendant structure not supported on the bottom of the well as was the Getty pump*. As said by the Court in the *Getty* case:

"It is also true that the Getty pump cannot be held to infringe the means that Layne used to keep his shaft properly aligned, since that was accomplished by *suspending* the mechanism from the top of the well, while Getty's pump mechanism receives its support *by resting on the bottom of the well*."

In such regard, the Getty pump departed from the Layne invention in respect to one of its dominating

and fundamental features. The great value of the Layne invention resides, in part, in the very fact that the structure, *concretely expressing said invention*, can be assembled, *unit by unit*, on the top of the ground and lowered, *unit by unit*, into the well, so that finally the whole structure is assembled and installed *suspended* from the top of the well like a plumb-bob, all without the necessity of man entering the well.

In the *Getty* case, the Circuit Court of Appeals for the Fifth Circuit, held the Getty pump structure not to infringe because of the differences between it and the Layne structure in respect to alinement, lubrication and protection. The finding of non-infringement, in that case, was not based on any one of said differences but upon the aggregate of said differences.

As said in the *Getty* case.

"Referring the closed shaft of Layne to the description in the specifications of his patent, as we must do, we think the differences from Getty's mechanism with respect to means of alinement, lubrication, and closure are so important that Getty's differing means should not be held to be mechanical equivalents, and should not be held to infringe the *closed* shaft of Layne's patent."

The difference between the Layne and Getty structures, first mentioned by the Court and particularly emphasized, is that the Getty structure is *not suspended* from the top of the well but is supported *on the bottom of the well*. On this point, the Court said:

"It is also true that the Getty pump cannot be held to infringe the means that Layne used to keep his shaft properly *aligned*, since that was accomplished by *suspending* the mechanism from the top of the well, while Getty's pump mechanism receives its support by *resting on the bottom of the well*."

The Court states that the El Campo pump (which was held *not* to infringe), was also *supported on the bottom of the well*.

As above mentioned, one of the dominating features of the Layne invention is the arrangement thereof whereby the structure may be assembled, *unit by unit*, on the top of the ground and lowered, *unit by unit*, into the well and, at the desired position in the well, held *suspended* from the top of the well.

The Getty pump structure, being one *supported on the bottom of the well* and thus differing from Layne's *suspended* structure in respect to a dominating feature, was held by the Court not to infringe the Layne patent.

However, the pump structure of respondents' herein is suspended from the top of the well and is, therefore, in that respect substantially *identical* with Layne's structure and substantially *different* from the Getty structure as well as from the El Campo structure.

Another difference between the Layne and Getty structures, mentioned by the Court, is the *absence*, in Getty's structure, "*of physical obstruction*," at the

DEFENDANT'S PUMP

PLAINTIFF'S Ex. No 16

WATER DISCHARGE  
CASING.

SHAFT ENCLOSING  
CASING.

SHAFT.

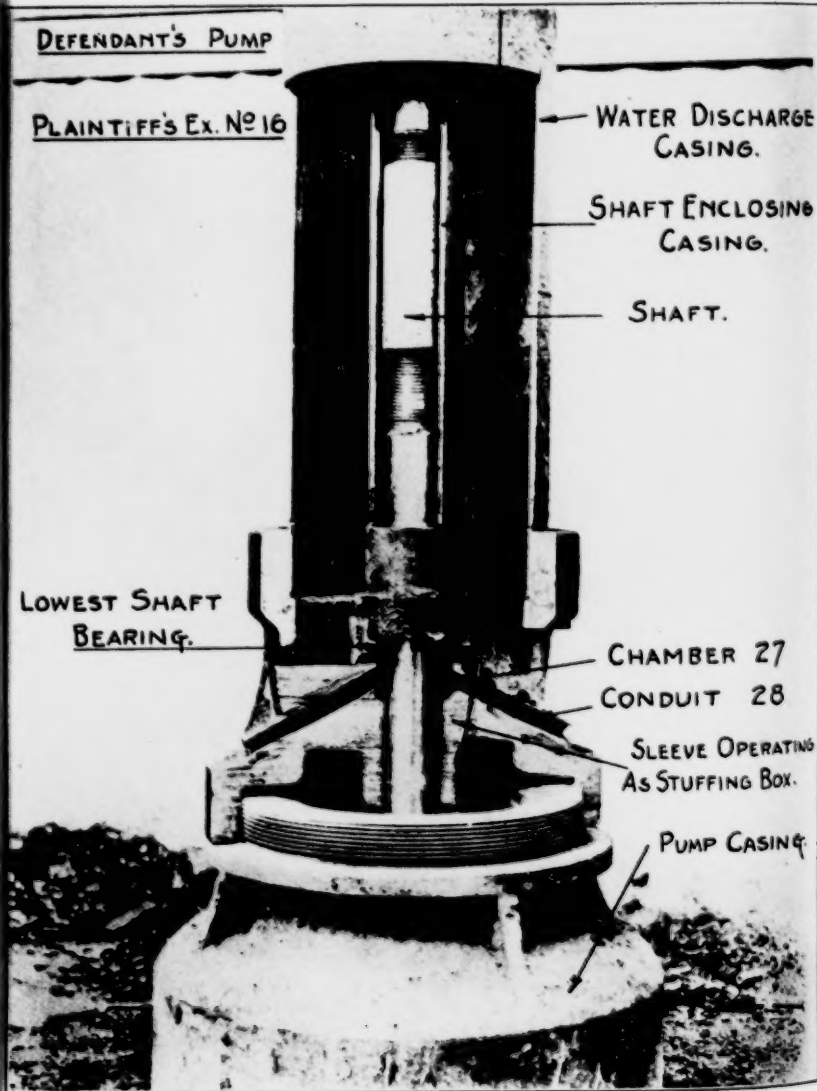
LOWEST SHAFT  
BEARING.

CHAMBER 27

CONDUIT 28

SLEEVE OPERATING  
AS STUFFING BOX.

PUMP CASING.



bottom of the shaft enclosing casing, to the entrance thereto of water and detritus.

As said by the Court, " . . . Getty's partial closure is effected by balancing the pressure of the column of water outside the shaft casing against the pressure of the oil inside the casing, *without the use of physical obstruction.*"

In the respondents' structure, *physical obstructions*, embracing a long sleeve bearing (similar to the corresponding Van Ness sleeve bearing), and a sleeve (operating as a stuffing-box), are used for closing the bottom of the shaft casing. Said "*physical obstructions*" are disclosed in Plaintiff's Exhibit No. 16, reproduced on the opposite page and being a photograph of respondents' structure with portions thereof cut away to disclose the interior arrangement of parts. In said exhibit, the sleeve bearing is designated "Lowest shaft bearing" and the stuffing-box sleeve as "Sleeve operating as stuffing-box."

The said "*physical obstructions*" *in co-operation with the down pressure of the column of lubricant within the casing and tending to and escaping therefrom*, prevent any water and detritus entering the casing precisely as in the Layne and Van Ness pump structures.

No such physical obstruction was present in the Getty structure and, as a consequence, the lubricant flowed freely out of the casing and the water and sand could enter freely so far as physical obstruction was concerned. Mr. Getty's testimony on this point



is quoted in the Supplemental Brief filed in the Court of Appeals for the Fifth Circuit on his behalf. At page 7 of such Brief, his testimony is quoted as follows:

"I fully realized that in a pump construction such as mine, when the lubricant was permitted freedom of travel downward and out at the bottom of the shaft casing, that the water of the well would be equally free to enter the shaft casing from below, and the said water would frequently carry with it fine, sharp, cutting sand up through the bottom bearing, and that said bearing particularly, *and perhaps some of the bearings above*, would suffer from the cutting and grinding action of the sand. All this was fully anticipated while the pump was being planned, *but as I saw no remedy, I decided that such destructive action must be tolerated.*"

Mr. Getty evidently meant he saw no remedy other than by appropriating Mr. Layne's invention and, therefore, decided to endure the destructive action of the sand and water.

On page 9 of such Getty brief, the testimony of one G. E. Tarbox is quoted as follows:

"Q. 16. When you pulled this pump (Getty), what, if anything, did you find in the casing?"

A. Nothing, excepting a very small quantity of water and sand.

Q. About how much sand?

A. About a handful.

Q. And whereabouts in the casing did you find this sand?

A. Immediately around the top of the bottom bearing.

Q. How long had this pump been in operation before you pulled it?

A. Why, the pump, as near as I can tell, was installed some time in February, 1914, and was pulled, I think it was, Sunday, June 20, 1915."

*A very different situation is presented by the Anderson pump, "Plaintiff's Exhibit 4," one of respondents' structures. An inspection thereof shows no water or sand have entered the casing; the bearings and shaft are bright and smooth and, when pulled and as it now remains, the shaft is covered with quantities of heavy grease which had remained in the casing from the time of the original installation of the pump.*

Obviously, there could be no free flow of lubricant through respondents' shaft enclosing casing and no free flow of water and sand into such casing. The proofs demonstrate the contrary. The heavy, *stagnant* lubricants which remain, *for years*, in the casing and on the shaft and above the bearings, would prevent even a free flow of the lighter emulsifying oil and certainly there is no free flow of such *stagnant* lubricants which remain in the casing for years.

The condition of the respondents' Anderson pump demonstrates that the "*physical obstructions*," aided by the lubricants, have excluded the water and sand. There is, therefore, a substantial difference between respondents' structure and Getty's in respect to *closure*. On the other hand, there is a substantial *identity* between respondents' structure and Layne's in respect to *closure*.

The third difference between the Layne and Getty structures, mentioned by the Court, was the continuous and free flow of oil through the Getty casing and out of the bottom thereof. The complete freedom of such flow is shown by the testimony of the witness Tarbox above quoted. On pulling a Getty pump, after a year and a half use thereof, he found only a little water and sand in the casing. *He found nothing else.* No lubricant remained.

The proofs show and respondents' witnesses and counsel admit that, *after years of use*, quantities of the *original* heavy grease, applied at the time of installation, remain in respondents' shaft enclosing casing and on the shaft and above the bearings and, as Mr. Doble testified, in the spiral grooves in the bearings. On this point, respondents' witness, Mr. Doble, Jr., said of respondents' Selby ranch installation:

"MR. WHITE—Q. Did you examine one of these spiral bearings, or grooves in the bearings?

A. I did.

Q. What did you find with regard to its condition?

A. It was filled with grease." (R. 819.)

With said *heavy grease* in the casing, on the shaft and in the spiral grooves of the bearings and thus being found *after years of use*, it is obvious that even the lighter, emulsifying oil could not flow freely through respondents' shaft enclosing casing.

As stated before, Layne's patent claims respectively

cover combinations of mechanical elements. One of said elements is the shaft enclosing casing, which is used as a *closure* against the destructive action of the detritus in the water being pumped; also, as a *means* of supporting and holding in *alinement*, the shaft bearings and shaft and also as a *conduit* through which lubricant may be applied to the bearings in series. In our opinion, it is *quite immaterial* whether or not the lubricant flows freely or otherwise. The claims do not cover a *method* or *process* of lubrication but merely a combination of mechanical elements of which one serves as a *conduit* for lubricants as well as performing other functions in respect to the work done by the combination as a whole.

The Court, in the *Getty* case, having found the Getty pump not to be a *pendant* structure and not embracing a *substantial closure*, evidently referred to the so-called "circulatory" lubrication as illustrating the absence of any substantial obstruction or closure at the bottom of the shaft enclosing casing. We cannot, for a moment, believe the Court would have found such Getty structure non-infringing if it had been *suspended* from the top of the well, and had embraced a substantial closure *which did protect the shaft bearings from the destructive action of the sand*.

In other words, closure at the bottom of the conduit must be sufficient to protect the shaft bearings from the destructive action of detritus. *But such bottom closure is immaterial as a feature of lubrication.*

When the lubricant reaches the bottom of the casing, it has completed its lubricating function.

However, there is no similarity between the Getty so-called circulatory system and the respondents' "stagnant" system in which the heavy lubricants remain in the casing *for years*. Also, the mere fact that *some* of the emulsifying oil and possibly *some* of the heavy grease, passes out of the bottom of the respondents' casing is immaterial. In the Layne structure, lubricant likewise passes out of the bottom of the casing. This fact is expressly found in the *Getty* as well as in the *Van Ness* cases. In the *Getty* case, the Court says that the Layne mechanical means *plus* "*the downward pressure of the column of oil in the shaft casing, accomplished his closure.*" Of course, the oil could not aid in excluding the water unless the oil itself was able to pass down the passage up which the water tended to flow. Layne's testimony herein is to the same effect (R. 604).

The sum and substance of this Getty decision is that the finding of non-infringement is predicated upon substantial differences in respect to *all three* of the functions performed by the shaft enclosing casing in respect to alinement, closure and lubrication. The decision is not based on any one difference but upon *all the differences*. It is the *aggregate* of the differences that prompted the Court to find the Getty structure to be substantially different from the Layne structure.

From the foregoing, it appears that the Circuit

Court of Appeals for the Fifth Circuit expressly found that Layne's patent was *not* limited to a shaft casing from which no lubricant escaped. In both the *Van Ness* and *Getty* cases, that Court expressly found that, in Layne's structure, the down pressure of the lubricant co-operated with physical obstructions in excluding the water from the shaft casing. And the lubricant could not do this unless it was able to pass from the casing down the passages through which the water tended to flow in an opposite direction into the casing.

Regarding such escape of the lubricant from Layne's shaft casing, Circuit Judge Gilbert's dissenting opinion is in full accord with the said decisions of the Circuit Court of Appeals for the Fifth Circuit in the *Van Ness* and *Getty* cases. Judge Gilbert found that:

"In both the appellee's (Layne) and appellants' mechanisms the oil is introduced at the top in substantially the same manner, and by gravity it traverses all the bearings. *In both there is some escape of oil through the lowest bearing*" (R. 1149).

Judge Dietrich, in the District Court, made a similar *finding of fact* which was *fully supported by the evidence*. Judge Dietrich's finding was thus expressed:

"Manifestly, if the oil is fed into the casing faster than it is dissipated, the vacant space will in time fill up and the column of oil thus formed

will press upon and have a tendency to escape out of the lowest bearing, thus co-operating with the stuffing-box in excluding water" (R. 890).

"In the actual operation of *plaintiff's* mechanism there is necessarily some escape of thin oil through the bottom bearing, for, as already explained, a perfect closure at this point cannot be maintained" (R. 895).

Notwithstanding such *finding of fact* by the District Court and the correctness of which Circuit Judge Gilbert affirmed, Circuit Judge Morrow and District Judge Wolverton reversed the same contrary to the ruling of this Court in *Adamson vs. Gilliland*, 242 U. S., 350, 353, wherein this Court said:

"Considering that a patent has been granted to the plaintiff, the case is pre-eminently one for the application of the practical rule that, so far as the finding of the master or judge who saw the witnesses depends upon conflicting testimony or upon the credibility of witnesses, or so far as there is any testimony consistent with the finding, *it must be treated as unassailable*. *Davis vs. Schwartz*, 155 U. S., 631, 636 (15 Sup. Ct., 237, 39 L. Ed., 289). The reasons for requiring the defendant to prove his case *beyond a reasonable doubt* are stated in the case of *The Barbed Wire Patent*, 143 U. S., 275, 284 (12 Sup. Ct., 443, 450, 36 L. Ed., 154)."

## III

## CONSTRUCTION OF LAYNE'S PATENT CLAIMS

One of the defenses, relied on herein, was that Byron Jackson, of San Francisco, was a "*prior inventor*" of that covered by the Layne patent claims in suit. *Respondents make no contention that Jackson ever built any anticipating pump.* The first pump made by him and claimed, by respondents, to embody Layne's invention, was not built until December, 1903, or January, 1904, almost *eight months after Layne's constructive reduction to practice* by the filing of his patent application on April 28, 1903.

Respondents' attorneys expressly disclaimed making any contention that Jackson ever made any anticipating pump. In respondents' Brief, filed in the Circuit Court of Appeals, their attorneys, at page 40, said:

"Let it be clearly understood at the outset that defendant does not contend that the Byron Jackson pump was *completed and operated* prior to Layne's filing date. Such 'completion and operation' are *not* necessary to a defense of *prior invention or knowledge.*" (Italics respondents.)

We shall discuss this Byron Jackson defense because, although *not* herein sustained by the Circuit Court of Appeals, it is referred to by Judge Morrow in construing the Layne patent claims *as being limited to a shaft casing from which no lubricant escapes.*

The same Byron Jackson defense was also held *not*



sustained in the case of *Petitioner vs. American Well and Prospecting Company et al., supra*.

The uncontradicted proofs show Layne conceived his invention as early as April, 1902 (R. 860; 868).

As Layne exercised *reasonable diligence* in filing, on April 28, 1903, his application for letters patent on his invention, the *date of said invention* must be deemed to be April, 1902.

Therefore, to sustain this Jackson defense, it was necessary for respondents to prove that, prior to April, 1902, Jackson conceived the same invention and, with *reasonable diligence*, either reduced the same to practice or filed an application for letters patent thereon.

However, respondents failed to introduce any proofs showing any completed "*conception*" by Jackson prior to the filing of Layne's application on April 28, 1903. Furthermore, respondents' proofs disclosed that Jackson never applied for letters patent on such invention and the first pump, made by him and claimed to embody Layne's invention, was not built by Jackson until *about eight months after the filing of Layne's application on which was issued the letters patent in suit*.

From the foregoing, it is apparent that, even though it were admitted, contrary to the proofs, that Jackson had a *mental conception* of said invention prior to Layne's conception, nevertheless Jackson could not be held to be a prior inventor *because he exercised no diligence* in reducing his mental conception to

practice and, therefore, could not be entitled to the *date of his mental conception* as the *date of his invention*. As said in Robinson on Patents, at page 150:

"Section 961. Third Defense: Denial that the Alleged Inventor was the first Inventor of the Patented Art or Instrument.

The third defense consists in a denial that the patentee or his assignor performed the inventive act producing the alleged invention *at an earlier date than any other inventors in this country*. This defense concedes that the patentee or his assignor is a true inventor of the art or article in question, but denies that he was its *first* inventor. It is equivalent to either of two averments: (1) That rival inventors had completely conceived the idea of means embodied in the invention, *and were using diligence in reducing it to practice* at the time when the patentee or his assignor conceived the same idea; or (2) that although the patentee or his assignor had *first conceived* the idea, *he did not use due diligence* in reducing it to practice, and that in the meantime some *later conceiver but more prompt reducer* had perfected the invention. This defense raises the same issue which is presented in interference cases in the Patent Office and in proceedings in equity to annul a rival patent, and is sustained when the evidence establishes either one of its equivalent averments."

As respondents made no attempt to fix the date of Jackson's conception by reference to any proofs showing a completed conception, petitioner's attorneys, in their Brief in the Circuit Court of Appeals, said:

"It is to be noted that defendants, in their Brief

do not attempt to point out *when* Byron Jackson had a complete conception of the Layne invention. Defendants do not refer to any written description, to any letter or to any drawing, completed prior to Layne's filing date or prior to the date upon which Layne's application was signed (April 3, 1903), from which the Court can find a completed idea or conception of the Layne invention."

Prior to referring to this Jackson defense, Judge Morrow, in his opinion, found, *contrary to the finding of the Circuit Court of Appeals for the Fifth Circuit*, that Layne's shaft casing did not perform the function of alining the shaft bearings and shaft. He then found that Jackson had a conception of the other features of the Layne invention excepting the alleged complete closure of the Layne shaft casing. In support of such finding, Judge Morrow quotes from numerous letters written *after* Layne executed his application for the letters patent in suit and in one of which letters, dated April 29, 1903, Jackson admits "*no such pump had been developed . . .*" This admission, alone, was sufficient to negative any contention that Jackson, prior to said letter or prior to Layne's application, had a *complete* mental conception of *any* proposed pump discussed in the letter. So far as Jackson was concerned, his ideas, at that time, were still inchoate.

Furthermore, it is to be noted that Judge Morrow, like respondents' attorneys, failed to point out *when* Jackson had a *complete conception* of *any* invention

and failed to refer to any written description, to any letter or to any drawing, completed prior to Layne's application date or prior to the date upon which Layne's application was signed (April 3, 1903), from which the Court could find a completed idea or conception of the Layne invention. Judge Morrow's views, in reference to the Jackson defense, were evidently based on what appeared in Jackson's letters written *after Layne had filed his patent application*.

Furthermore, Judge Morrow failed to discuss and apparently failed to consider the *question of diligence* in determining the *date* when Jackson could be said to have made a completed invention of any character. As said before, admittedly Jackson made no anticipating pump and did not make any pump, claimed by respondents to embody Layne's invention, *until about eight months after Layne filed his patent application*. And, in such *subsequent* Jackson pump, Judge Morrow did *not* find embodied the Layne shaft casing performing the function of alining the shaft bearings and shaft.

From the foregoing outline of the situation, it is apparent the Byron Jackson defense should have no effect on the scope of Layne's patent claims. The said defense was also overruled by trial Judge Dietrich and by Circuit Judge Gilbert. It was also overruled by the Master in the case of *Petitioner vs. American Well and Prospecting Company, supra*.

Judge Morrow's findings herein may be attributed to his confusion of the various and very differently

functioning casings mentioned in the Layne patent claims in suit. In his opinion, at page 1127 of the record, Judge Morrow made the following findings:

"We find also that the combination with a 'pump casing' mentioned in clause 2 of claim 9, the 'closed casing surrounding the pump shaft' mentioned in clause 5 of claim 9, the 'sectional casing' mentioned in clause 4 of claim 13, the 'casing being closed at the top' in clause 8 of claim 13, and the 'well casing' of clause 2, claim 20, by which the pump is 'entirely closed off from the water in the well' mentioned in the last two words of clause 4 and in clause 5 of claim 20, perform the same function . . . ."

In said quotation, *three* separate and distinct casings, respectively performing entirely different functions, are spoken of as being *one and the same thing and performing the same function*.

The "pump casing," of Claim 9, is numbered 21 in the Layne patent and, as clearly shown in Figure 1, is the casing that encloses the pump impellers. Obviously, said casing is not closed off from the water in the well. In order to operate the pump, the well water is permitted to enter the bottom of said casing 21 and said water, by the rapid rotation of the impellers within said casing, is forced out of said casing and up through the water discharge pipe 23 to the surface of the ground.

The "closed casing," of Claim 9, is the shaft enclosing casing numbered 20 in the Layne patent. This casing is supported at the top of the well and

hangs pendant therein, like a plumb-bob. So hanging in a vertical plane, it maintains in vertical alinement the shaft bearings mounted therein and thus maintains the shaft in vertical alinement. This casing also forms a conduit down through which the lubricant passes and lubricates, in series, the said shaft bearings. This casing also prevents the water and sand therein from coming in contact with the shaft bearings and thus destroying them.

The "well casing," of Claim 20, is numbered 16 in the Layne patent and forms an inner lining for the well bore to prevent caving in of the ground surrounding the bore of the well.

In the above quotation, His Honor, Judge Morrow, has erroneously treated these three separate and distinct casings as one and the same thing. Therefore, in construing Claims 9, 13 and 20, he has treated these *three distinct elements* thereof *as being only one element*. This confusion of these various elements may have been the reason for much of the conflict between the Circuit Court of Appeals' decision herein and the various prior decisions of the Circuit Court of Appeals for the Fifth Circuit.

## CONCLUSION

The Layne patent is now being extensively infringed and numerous suits, *in different circuits*, are pending against infringers thereof. In the *Ninth Circuit*, the Layne patent does *not* cover and, in the *Fifth Circuit*, *does* cover a structure embracing a shaft casing from which lubricant escapes from the bottom thereof. It is, therefore, in view of the said conflicting decisions of the respective Circuit Courts of Appeal for the Fifth and Ninth Circuits, important that this Court adjust and determine such conflict by herein rendering a decision definitely determining the scope to be accorded, in *all* circuits, to the Layne patent claims.

Upon the case made out in the petition, it is respectfully submitted that the writ of certiorari addressed to the Judges of the United States Circuit Court of Appeals for the Ninth Circuit should be issued as prayed.

FREDERICK S. LYON,  
WILLIAM K. WHITE,  
LEONARD S. LYON,  
*Counsel for Petitioner.*

## NOTICE

To Messrs. Chas. E. Townsend and Wm. A. Loftus,  
Counsel for Respondents.

Gentlemen:

You will please take notice that on Monday, the 13th day of March, 1922, at 12 o'clock noon, or as soon thereafter as counsel can be heard, the foregoing Petition and accompanying Brief will be submitted to the Supreme Court of the United States at its usual place of holding its sessions in the Capital at Washington, D. C., for its consideration and action at which time and place you will please take such action in the premises as you may be advised.

FREDERICK S. LYON,  
WILLIAM K. WHITE,  
LEONARD S. LYON,  
*Counsel for Petitioner.*

## ADMISSION OF SERVICE

Service of a copy of the foregoing Petition, Brief and Notice is acknowledged this 16th day of February, 1922.

CHAS. E. TOWNSEND,  
WM. A. LOFTUS,  
*Counsel for Respondents.*